DOCUMENT RESUME

ED 154 682 HE 009 954

AUTHOR	Mantovani, Richard E.
TITLE	Studies of Medical Student Financing: Trends in Medical Student Financing, 1973-74 Through 1975-76. Final Report.
INSTITUTION	Association of American Medical Colleges, Washington, D. C.
SPONS AGENCY	Health Resources Administration (DHEW/PHS), Bethesda, Md. Bureau of Health Manpower.
PUB DATE	Jan 78
CONTRACT	231-76-0011
NOTE	94p.; Some pages may not reproduce well
AVAILABLE FROM	Association of American Medical Colleges, One Dupont Circle, N.W., Washington, D.C. 20036
EDRS PRICE	MF-$0.83 HC-$4.67 Plus Postage.
DESCRIPTORS	*Family Income; *Financial Needs; Financial Support; Higher Education; Medical Education; *Medical Students; *Scholarships; Statistical Data; *Student Financial Aid; Student Loan Programs; Student Needs; *Tuition
IDENTIFIERS	National Health Service Corps Scholarship Program; Public Health Service

ABSTRACT

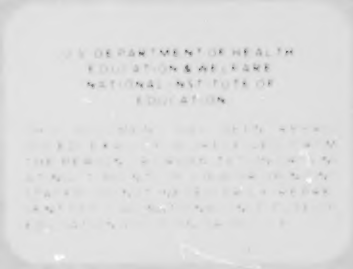
Trends in medical student financing from 1973-74, when the Public Health Service and National Health Service Corps (PH/NHSC) scholarship and the Armed Forces Health Professions scholarship programs were created, to 1975-76 are investigated. Major variables in the study include specific sources of student assistance, tuition rates, and gross parental or family income. The analysis focuses on gross relationship between student assistance, family income and tuition rates for groups of schools differentiated by other control (private/public) and tuitions. It was found that despite the decrease in funds from the Health Professional Loan and Scholarship programs, the total financial needs of medical students in most schools were met to the same or to a slightly lesser degree in 1975-1976 than in 1973-1974. In high-tuition public schools and in private schools with tuitions ranging from $2,501 to $3,000, however, the growth in financial aid need was substantially unmet by financial aid resources. The major factors that determined how well these schools, as well as other schools, met their needs include: (1) the degree to which the school's financial aid needs increased during the period; (2) the extent to which the school suffered from a decline in certain sources of funding, particularly the Health Professions Loan and Scholarship programs; (3) the degree to which schools were able to use other sources of funding, particularly their own funds and guaranteed bank loans; and (4) the extent to which the PH/NHSC and the Armed Forces scholarships were directed to needy students. (Author/SPG)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED154682

STUDIES OF MEDICAL STUDENT FINANCING

TRENDS IN MEDICAL STUDENT FINANCING 1973-74 THROUGH 1975-76



FINAL REPORT

Association of American Medical Colleges
One Dupont Circle, N.W., Washington, DC 20036

HE 001954

U.S. Department of Health, Education and Welfare
Public Health Service
Health Resources Administration
Bureau of Health Manpower
Contract No. 231-76-0011

© Association of American Medical Colleges, 1977

The Government retains the right to use, duplicate or disclose the contents of this report and to have or permit others to do so.

STUDIES OF MEDICAL STUDENT FINANCING

TRENDS IN MEDICAL STUDENT FINANCING, 1973-74 THROUGH 1975-76

Richard E. Mantovani

OTHER STUDIES IN THIS SERIES

Survey of How Medical Students Finance Their Education, 1974-75

Medical Student Indebtedness and Career Plans, 1974-75

Medical Student Finances and Personal Characteristics, 1974-75

Medical Student Finances and Institutional Characteristics, 1974-75

Comparison of 1974-75 Survey Findings With Data From Other Sources

DIVISION OF STUDENT STUDIES

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

January 1978

FINAL REPORT

The work upon which this publication is based was supported in part by the Bureau of Health Manpower, Department of Health, Education, and Welfare pursuant to contract number #231-76-0011. However, any conclusions and/or recommendations expressed herein do not necessarily represent the views of the supporting agency.

TABLE OF CONTENTS

		Page
	List of Tables	iii
	Executive Summary	vii
I.	INTRODUCTION	1
II.	METHODOLOGY	5
	A. Data Sources	5
	B. Method of Analysis	6
	C. Limitations of Study	8
III.	RESULTS AND DISCUSSION	11
	A. Trends in the Financial Needs of Medical Students	11
	B. Distribution of Financial Aid Resources	20
	1. Loans and Scholarships Administered by the Medical Schools	20
	a. Loans	22
	• Health Professions Loans	22
	• Loans from School Funds	24
	• Loans from other School-Administered Funds	27
	b. Scholarships	28
	• Health Professions Scholarships	28
	• Scholarships from School Funds	30
	• Scholarships from Other School-Administered Funds	31
	c. Summary of Medical School Financial Aid Activity	32

Page

2. Loans and Scholarships Administered by Institutions Other Than the Medical Schools . . 34

a. Loans 34
- AMA-ERF Loans 34
- Guaranteed Loans 37
- Other Loan Sources . . . 38

b. Scholarships 39
- Need-based Scholarships 39
- PH/NHSC and Armed Forces Scholarships 41

C. Students' Economic Background and the Distribution of Financial Aid . . 44

IV. SUMMARY AND CONCLUSIONS 51

BIBLIOGRAPHY 55

Appendix A: Information on Data Elements and Classification of Schools . . 57

Appendix B: Supplementary Information on Average Amount of Aid From Various Miscellaneous Sources of Aid, 1973-74 Through 1975-76 . . . 73

Appendix C: Techniques for Estimating Total Information About Financial Aid 79

Appendix D: Supplementary Information on the Number and Proportion of Students Receiving Loans and Scholarships, 1974-75 87

List of Tables

		Page
Table 1:	Trends in the Financial Needs of Medical Students, 1973-74 Through 1975-76	12
Table 2:	Zero-Order Correlation Coefficients Signifying the Relationship of Enrollment and Tuition to Total Need, 1973-74 Through 1975-76	13
Table 3:	Cumulative Distribution of Parental Incomes of Medical Students by Control and Tuition Level of Medical School, 1974-75	15
Table 4:	Number and Proportion of Medical Students Demonstrating Need by Control and Tuition Level of Medical School, 1973-74 Through 1975-76	17
Table 5:	Average Amount of Financial Aid Needed at Medical Schools by Control and Tuition Level of School, 1973-74 Through 1975-76	19
Table 6:	Trends in the Distribution of Financial Aid by Source, 1973-74 Through 1975-76	21
Table 7:	Average Amount of Loan Aid Distributed Through the Medical School by Control and Tuition Level of School, 1973-74 Through 1975-76	23
Table 8:	Number of Medical Schools Distributing Loans from Their Own Funds by Type of Loan and Control of School, 1973-74 Through 1975-76	25
Table 9:	Average Amount of Scholarship Aid Distributed Through the Medical School by Control and Tuition Level of School, 1973-74 Through 1975-76	29

Page

Table 10: Summary of Loans and Scholarships Distributed Through the Medical School by Control and Tuition Level of School, 1973-74 Through 1975-76 33

Table 11: Average Amount of Loan Assistance Administered Through Non-Medical School Sources by Control and Tuition Level of School, 1973-74 Through 1975-76 35

Table 12: Average Amount of Aid Administered Through Non-Medical School Sources by Control and Tuition Level of School, 1973-74 Through 1975-76 40

Table 13: Financial Aid Administered From Public Health Service (PH/NHSC) Scholarships and Armed Forces Health Professions Scholarships by Control and Tuition Level of School, 1973-74 Through 1975-76 43

Table 14: Proportion of Financial Aid Funds Distributed to Students of Different Economic Background Within Schools of Similar Control and Tuition Level by Source of Aid, 1975-75 45

Table 15: Proportion of Aid Received by Students From Families Earning Less than $20,000 by Source of Aid, Control and Tuition Level of Medical School, 1974-75 48

Table A-1: IPS Elements on Financial Assistance 67

Table A-2: Classification of Financial Assistance Programs for Medical Students 69

Table A-3: Classification of Public and Private Schools by Tuition Level 71

Table B-1: Average Amount (in thousands of dollars) of Guaranteed and Non-Guaranteed Loans from School Funds by 75

Page

Control and Tuition Level of Medical School, 1973-74 Through 1975-76

Table B-2: Average Amount (in thousands of dollars) of "Other" School-Administered Loans by Source, Control and Tuition Level of Medical School, 1973-74 Through 1975-76 76

Table B-3: Average Amount (in thousands of dollars) of "Other" School-Administered Scholarships by Source, Control and Tuition Level of Medical School, 1973-74 Through 1975-76 77

Table B-4: Average Amount (in thousands of dollars) of "Other" Scholarships from Non-Medical School Sources by Control and Tuition Level of Medical School, 1973-74 Through 1975-76 78

Table C-1: Regression Equations Used to Estimate the Number of Students Requesting Aid at Schools With Missing Data 82

Table C-2: Regression Equations Used to Estimate the Number of Students Determined to Need Aid at Schools With Missing Data 84

Table C-3: Trends in the Financial Needs of Medical Students as Reported by Medical Schools, 1973-74 Through 1975-76 85

Table D-1: Number and Proportion of Students Receiving Loan Aid by Source of Aid, Control and Tuition of Medical School and Parental Income Level 89

Table D-2: Number and Proportion of Students Receiving Scholarship Aid by Source of Aid, Control and Tuition of Medical School and Parental Income Level, 1974-75 91

EXECUTIVE SUMMARY

Prior to the 1973-74 academic year, loan and scholarship aid to medical students was distributed only on the basis of their financial needs. A new era of medical student financing began in 1973-74, however, with the creation of the Public Health Service and National Health Service Corps scholarship and the Armed Forces Health Professions scholarship programs. These programs, instead of addressing the financial needs of medical students, provided financial support to those willing to commit themselves to a period of service in the National Health Service Corps or in the military. The purpose of this study, Trends in Medical Student Financing, 1973-74 Through 1975-76, is to investigate trends in student financing from 1973-74, the initial year of this new era, to 1975-76. Specifically, the study focuses on the degree to which sources of aid met the financial needs of students with different economic backgrounds in particular medical schools.

Methodology

The data used in this study were derived from two sources. The first source is the financial aid portion of the Liaison Committee on Medical Education questionnaire, which is stored in the AAMC's Institutional Profile System. A second source is the 1974-75 survey of "How Medical Students Finance Their Education."

Major variables in the study include (a) specific sources of student assistance, (b) tuition rates and (c) gross parental or family income. The analysis focuses on gross relationship between student assistance, family income and tuition rates for groups of schools differentiated by their control (private/public) and tuitions.

Major Findings

From 1973-74 to 1975-76, financial aid administered through all financial aid sources increased by 60 percent. Excluding the funds distributed from the Public Health and National Health Service Corps (PH/NHSC) and the Armed Forces Health Professions scholarships, which are not awarded on the basis of need, the amount of financial aid increased by only 32 percent. In comparison, the total financial need of medical students rose 38 percent during this period.

One of the primary reasons for the inability of aid to meet need during this period was the decrease in aid distributed through the Health Professions Loan and Scholarship Programs. When considered in light of the growing need during this period, 12.1 percent less financial aid need was met in 1975-76 than in 1973-74.

The reduction of Health Profession Loan and Scholarship funds made it imperative that other sources be utilized to a greater degree to meet the aid needs of medical students. Public schools with low tuitions, which experienced a 44 percent growth in their financial aid needs, exhibited large increases in financial aid from guaranteed bank loans and from scholarships not administered by the school. Public schools with higher tuitions, experiencing a 62 percent growth in their aid needs, tended to use guaranteed bank loans and school-funded scholarships to offset the decline in Health Professions Loans. These schoools, however, suffered the largest decline of all the public schools in their ability to meet students growing financial needs.

Private schools, which suffered less from the decline in Health Professions Loan and Scholarship funds in meeting their financial aid needs, utilized mainly American Medical Association Education and Research Foundation (AMA-ERF) loans and guaranteed bank loans to offset the decline in Health Professions funds. The ability of most of these schools to keep pace with their needs was facilitated by the relatively extensive use of their own funds in supporting needy students. Exceptions were private schools with tuitions between $2,501 and $3,000, which met, in aggregate, 28 percent less of their students' financial needs in 1975-76 than in 1973-74.

The impact of the decrease in funds from the Health Professions Loan and Scholarship programs generally reduced the ability of schools to meet students financial aid needs. Thus, across all schools, 5 percent less need was met in 1975-76 than in 1973-74. In addition, the decline in Health Professions Scholarship and Loan funds had the greatest impact on students from less affluent backgrounds, who were to a large degree funded by this source.

Since the PH/NHSC and Armed Forces scholarships are not oriented towards providing funds for students from less affluent backgrounds, increases in these funds were not expected to substantially alleviate the needs of less affluent students. It is noteworthy that the utilization of these scholarship funds increased least among those schools that demonstrated the largest decreases in meeting their financial aid needs. This confirms that these scholarship funds generally were not used to replace other financial aid funds in meeting financial aid needs.

Conclusions

Despite the decrease in funds from the Health Professions Loan and Scholarship programs, the total financial need of medical students in most schools were met to the same or to a slightly lesser degree in 1975-76 than they had been in 1973-74. In high tuition public schools and in private schools with tuitions ranging from $2,501 to $3,000, however, the growth in financial aid need was substantially unmet by financial aid resources. The major factors that determined how well these schools, as well as other schools, met their needs include: 1) the degree to which the school's financial aid needs increased during the period, 2) the extent to which the school suffered from a decline in certain sources of funding, particularly the Health Professions Loan and Scholarship programs, 3) the degree to which schools were able to utilize other sources of funding, particularly their own funds and guaranteed bank loans, and 4) the extent to which the Public Health and National Health Service Corps and the Armed Forces scholarships were directed to needy students.

Future trends in meeting financial aid needs will probably also depend on the above factors. Crucial to success in meeting needs, however, will be the degree to which guaranteed bank loans can be utilized by schools that are not financially affluent and that are attempting to establish relationships with banks or other lending associations.

I. INTRODUCTION

Historical trends in the financing of medical students reflect, to a large degree, federal health manpower policies. The federal government's effort to affect the production of health manpower through financial aid began with the enactment of the Health Professions Educational Assistance Act of 1963. From that year to 1973, financial assistance provided to medical students had the dual purpose of 1) providing the opportunity for individuals from economically disadvantaged backgrounds to obtain a medical education and 2) attracting a greater number of qualified individuals who, without such assistance, would have decided against applying to or entering medical school.

Financial aid provided by the 1963 Act and subsequent legislation was envisioned as part of a larger program that sought to increase the number of physicians, thereby making health care services available to a greater number of individuals. The results of this program were impressive. In all, 25 new medical schools were established between the 1963-64 and 1973-74 academic years and enrollment increased from 32,001 to 47,546 students. To meet the financial needs of this growing body of students in the light of increases in both tuitions and living costs during these years, financial assistance from all sources increased from 14.6 million dollars in the 1963-64 academic year to over 65.6 million dollars in the 1972-73 year.

In the late 1960's and early 1970's, there was a growing realization among health care planners that, despite the increasing number of physicians, individuals were still not receiving the health care that they needed. This situation was attributed to the overabundance of specialists and to the inadequate number of physicians practicing in primary care specialties and in medically underserved communities. The federal government, as well as state governments and private foundations, began to institute financial aid programs that would persuade students to enter the primary care specialties or to serve in health manpower shortage areas.

Of all the programs with these aims, the most prominent is the Public Health/National Health Service Corps (PH/NHSC) scholarship program, which began to make awards in 1973. This program, offering full tuition and stipends to selected students in return for their commitment to serve in health manpower shortage areas as Public Health Service physicians,[1] has recruited approximately 5,500 students since its inception.

Two other major financial aid programs that have reflected federal health manpower policies in recent years are the Armed Forces Health Professions scholarship and the Federally Insured Student Loan programs. The former, awarded for the first time in 1973, sought to increase the number of physicians in the military by providing full payment of tuition and a stipend to students committing themselves to a term of military service. These scholarships, in essence, were designed to alleviate the continuing problem of recruiting medical doctors to the armed services.

The Federally Insured Student Loan (FISL) program was established in 1965 to stimulate lending from banks, loan associations and other authorized institutions to students in financial need. From 1973-74 to 1975-76, this program replaced the Health Professions Loan program as the largest source of financial aid to needy medical students.

Together, the PH/NHSC scholarship, the Armed Forces scholarship and FISL programs constitute a different approach to medical student financing than that which was present between 1963 and 1973. With substantially increased funding from the recently enacted Health Professions Educational Assistance Act of 1976, newly created versions of these three programs

---

[1] The three programs in which scholarship recipients are assigned after graduation are the National Health Service Corps, the Indian Health Service Corps and the Bureau of Medical Services, which provides physicians to the Coast Guard and federal prison system.

are expected to serve as the primary basis for financing medical students in the future.[1]

The focus of this study is on charting trends in medical student financial assistance from 1973-74 to 1975-76. Of particular interest is the impact of changes in the availability of financial aid on the ability of different schools to provide aid and on the ability of students of different economic backgrounds to finance their education. The results from this study can serve as a useful base for measuring the impact that future funding level changes of the various federal loan and scholarship programs have upon medical student financing after 1975-76.

---

[1] The PH/NHSC program will be replaced by the National Health Service Corps Scholarship and Indian Health Service Corps Scholarship programs. Although different in their requirements, obligations and benefits than the old program, they retain the basic premise (i.e. scholarship aid as payment for future service). The Armed Forces Scholarship Program also differs somewhat from its predecessor but retains its premise and will be a continuation of the old program. FISL will be replaced by a similar program known as "Super" FISL. This new program remains essentially the same except for its higher interest rate and requirements specifying an immediate (upon receipt of loan) commencement of principle and interest payments.

II. METHODOLOGY

In charting trends in financial aid between 1973-74 and 1975-76, this study examines the degree to which specific sources of aid meet the financial needs of 1) medical students in public and private schools with different tuitions, and 2) students from different economic backgrounds. In other words, the study identifies which types of schools and which students within these types of schools are most affected by funding level changes of particular aid sources--the Health Professions Loan program, for example--operating between 1973-74 and 1975-76.

A. Data Sources

The primary data source for this study is the AAMC-AMA Liaison Committee on Medical Education (LCME) annual survey of medical schools. In addition to obtaining information on medical school characteristics such as enrollment, revenues, expenditures and curriculum, the survey also collects information on student financing. These data, which are kept for each school in the AAMC's Institutional Profile System (IPS), represent the most complete record available on medical student financing activities at the institutional level.[1] (See Appendix A for financial aid questions on the 1974-75 LCME questionnaire and for a list of IPS elements.)

The second source of data for this study is the "1974-75 Survey of How Medical Students Finance Their Education." That survey, which collected financial and

---

[1] These data are reported annually in aggregate form in the Journal of American Medical Association's (JAMA) report on medical education. The figures in that data base do not necessarily correspond exactly to the figures reported here since the JAMA report makes no attempt to estimate missing information. For the methodology used to estimate total information about financial aid in this study, see Appendix C.

background information on a sample of 7,261 medical students enrolled in the 1974-75 academic year, is the latest and most complete data base on individual medical students. This data base was used to identify which financial aid sources were used to a relatively greater extent by students from lower economic backgrounds, who are assumed to be the individuals with the greatest needs. Such information could, therefore, supply clues as to whether students from less affluent backgrounds suffered from funding changes in certain programs.

B. Method of Analysis

The emphasis of this study is to discern differences among medical schools in their use of particular financial aid sources to meet the needs of their students. The first part of this study establishes a base from which changes in medical student financing between 1973-74 and 1975-76 can be evaluated. Important variables in this analysis are: 1) students' gross parental income, 2) number of students demonstrating need and 3) amount of financial aid required by needy students.

Students' gross parental income was obtained from 1974-75 survey data, which was assumed to be fairly constant throughout the period under study. The number of students demonstrating need as well as the amount of financial aid demonstrated were estimated from figures provided by the medical schools from their need analysis of students applying to them for aid and from estimates representing students applying only to sources other than the medical school. (For more information on techniques used in estimating these data, see Appendix C.) Analysis of these variables provides information on the extent to which financial need is present in all 114 medical schools in each of the three years covered by this study.

The second part of the study examines the amount of aid distributed from specific sources of student assistance (as detailed in Table A-2 in Appendix A) between 1973-74 and 1975-76. The analysis, although reporting on the average amount of funds dispersed from

various financial aid sources, evaluates the degree to which aid meets the financial need demonstrated in a particular year. This approach is helpful in identifying financial aid programs that, although distributing a constant amount of aid during this period, may be meeting a smaller proportion of the growing financial aid need. Major sources of aid examined include 1) Health Professions Loans and Scholarships, 2) school-funded loans and scholarships, 3) American Medical Association-Education and Research Foundation Loans, 4) Public Health and National Health Service Corps Scholarships and 5) Armed Forces Health Professions Scholarships. Information on these sources is supplemented by the data from other loan and scholarship programs listed in Table A-2.

A third part of the analysis concerns itself with the degree to which financial aid is distributed to students of different economic backgrounds. This analysis uses data from the 1974-75 survey of individual medical students to obtain distributions of 1) students by their family's income level and 2) amount of aid received by students with different family incomes. From this information, it is possible to gauge the extent to which certain financial aid sources are used to support students from less affluent backgrounds. Although the data applies to the 1974-75 academic year, it may be used to extrapolate backwards to 1973-74 and forwards to 1975-76 on the assumption that both the economic backgrounds of medical students and the amount of aid awarded to students of various economic backgrounds remained relatively constant in these years. Such extrapolations, when combined with institutional trend data on particular sources of aid, are used to identify which income level of students suffered or gained the most from changes in funding of specific financial aid sources.

In the above analyses, the focus is on comparing public and private schools grouped by their tuition levels. The tuition variable used to group schools is given by the following formula:

$$AT = \frac{(IS)(IT)+(OS)(OT)}{IS+OS}$$

where AT is average tuition, IS and OS are the number of instate and out-of-state students and IT and OT are the amount of instate and out-of-state tuition rates. For schools that do not apply different tuition rates to instate and out-of-state students, the average tuition will be equal to the basic tuition rates. For schools (mostly public) that do apply different tuition rates, their instate and out-of-state rates are averaged. In addition to representing the financial requirements of attending a certain school, this measure also serves as a proxy for the revenue requirements needed to support educational programs for medical students since it represents the average (per student) amount of dollars received by the schools from tuition payments.

On the basis of 1974-75 average tuition, public medical schools are divided into three categories and private schools into four. (Information on the membership of each group is given in Table A-3 of Appendix A.) These divisions are used to make comparisons between 1) public and private schools and 2) between high and low tuition schools within each control type in each of the three years.

Because of the focus on comparisons among medical schools in these different clusters, it was necessary to maintain the composition of these groups throughout the three academic years under study. Maintaining these groups increased the capability of this report to control for medical school characteristics (other than tuition and control) that might otherwise affect trends in the distribution of financial aid. For this reason, 1974-75 tuition levels were used in forming appropriate clusters of schools that could be used in analyzing trends in financial aid throughout the three year period. These tuition levels were highly correlated to tuitions in 1973-74 and 1975-76 and thus provide an overall indication of the relationship between tuition and the distribution of aid throughout the period.

C. Limitations of Study

In some instances, neither of the two data bases could be used to provide complete and accurate accounts

of the financial aid patterns between 1973-74 and 1975-76. For the institutional data obtained from IPS, the major problem was missing responses--which were particularly manifest for those variables referring to financial aid that was not administered by the schools. The Public Health and National Health Service Corps and Armed Forces Health Professions scholarships were two instances in which the response rate was approximately equal to 90 percent, a figure that is too low to obtain exact aggregate information on financial aid trends from these sources. This situation is aggravated by the tendency of schools to report information in one year and not in the succeeding year. Therefore, averages are used in this study since these figures would not vary with the number of cases within each affiliation and tuition group. By using averages, comparisons can be made between schools across all three years without concern over the number of schools reporting data in each year.

The data from the 1974-75 survey of individual students suffer from two limitations. First, these data apply only to 1974-75 and therefore cannot be used to describe, with certainty, changes in how certain kinds of financial aid are distributed to students in other years.

A second problem associated with the data from the 1974-75 survey concerns the lack of substantial information on certain financial aid programs. For some programs--such as the Robert Wood Johnson Loan and Scholarship programs--there is not enough information reported to discern the economic background of students who are receiving these awards. In some cases, therefore, such loan programs have been collapsed into more meaningful categories. (Specific information on all loan and scholarship programs, regardless of size, is given in Appendix B.) These collapsed categories also permit the use of this survey data to supplement the IPS data, which has a somewhat different way of classifying aid sources.

III. RESULTS AND DISCUSSION

A. Trends in the Financial Needs of Medical Students

In 1973-74, the amount of financial aid needed by medical students was estimated at 97.9 million dollars (see Table 1). Between that year and the 1975-76 academic year, need for such aid grew to 134.7 million dollars--an increase of 37.6 percent. Part of this increase could be attributed to the 9.9 percent rise in the number of medical students demonstrating need, which generally reflected the 12.1 percent growth in total enrollment during the period.

A second factor contributing to the almost 37 million dollar increase in financial aid need was the growth in the average amount of assistance required by students demonstrating need.[1] In 1973-74, the average amount of aid required by that portion of enrolled students who needed aid was $3,314 or approximately twice the average tuition paid by students during that year. In 1975-76, this amount increased to $4,147, which was again equal to twice the prevailing tuition rate. In other words, the rise in the average amount of financial aid needed by students was substantial and paralleled the growth in average tuition during that period.

In the aggregate, it appears that trends in the need for financial aid corresponded to growth in enrollment and tuition from 1973-74 through 1975-76. As demonstrated by the correlations in Table 2, this relationship was not uniformly true across all schools. For instance, the correlation between change in enrollment and change in total need is .326, which is a weak although significant indication that a relationship exists. Changes in tuition showed no statistically significant relationship to change in

---

[1] This average is not calculated over all students but only for those who were considered needy through financial needs analyses utilized by the medical school.

TABLE 1

Trends in the Financial Needs of Medical Students, 1973-74 Through 1975-76

Variable	1973-74	1974-75	1975-76	Percent Change 1973-74 to 1975-76
Enrollment (No.)	50,147	54,076	56,244	12.1%
Students Requiring Aid (No.)	29,554*	31,019*	32,472*	9.9%
(Percent)	58.9%	57.4%	57.7%	
Average Aid Required Per Student	$ 3,314	$ 3,914	$ 4,147	25.1%
Average Tuition	$ 1,743	$ 1,927	$ 2,182	25.2%
Total Need (in millions)	97.9*	121.4*	134.7*	37.6%

* These data are estimated from (1) the medical school's assessment of total need among the students that apply to them for aid and (2) an added amount representing the need of students not applying to the medical school. For more information on estimation techniques, see Appendix C.

TABLE 2

Zero-Order Correlation Coefficients Signifying the Relationship of Enrollment and Tuition to Total Need, 1973-74 Through 1975-76

Variable	Demonstrated Total Need			Change in Demonstrated Total Need, 1973-74 to 1975-76
	1973-74	1974-75	1975-76	
Enrollment	.625*	.657*	.681*	____
Tuition	.346*	.394*	.329*	____
Change in Enrollment (1973-74 to 1975-76)	____	____	-.082	.326*
Change in Tuition (1973-74 to 1975-76)	____	____	+.043	.139

* Significantly different from zero at $\alpha = .05$.

total need. Therefore, schools that experienced the largest growth in enrollment or raised their tuition by the largest amount did not necessarily experience the greatest rise in their financial aid needs.

Total need, however, does seem to be related to a school's size and, to a lesser degree, to its tuition. For instance, the correlations between enrollment and total financial aid need are relatively high and positive in all three years (the correlations range from .625 in 1973-74 to .681 in 1975-76). The relationship between tuition and total need, although weak, is substantially larger than that found between change in tuition and change in total financial need. These data suggest that differences in financial need trends between medical schools can best be described by the school's basic characteristics rather than by the degree to which those characteristics changed between 1973-74 through 1975-76. Two such characteristics that may be helpful in describing such trends are the school's affiliation or control (public/private) and its general tuition level.

Variation in the number of needy students in schools with different affiliations and tuitions may be expected to reflect the degree to which students can tap parents for financial assistance. Table 3 presents information on family income distributions of students enrolled in the 1974-75 academic year.[1] Overall, 16.0 percent of the students had parents earning less than $10,000 and 49.5 percent had parents earning less than $20,000. As expected, public schools tended to enroll a greater proportion of students from lower income families than private schools. For example, whereas public schools enrolled 16.9 percent of all their students from families earning less than $10,000, private schools enrolled only 14.8 percent from such families. This difference between public and private schools becomes larger at every income interval up to $30,000. Among public schools, the distribution of parental income does not appear to vary with tuition; however, private schools with higher tuitions tended to enroll less of their students from lower income backgrounds. The distributions given in Table 3 cannot

---

[1] These data are derived from the "1974-75 Survey of How Medical Students Finance Their Education."

TABLE 3

Cumulative Distribution of Parental Incomes of Medical Students
By Control and Tuition Level of Medical School,
1974-75

Control and Tuition Level	Parental Income			
	≤$10,000	≤$15,000	≤$20,000	≤$30,000
All Schools	16.0	34.0	49.5	71.4
Public	16.9	35.8	52.4	74.7
$ 0 - 750	18.2	35.4	51.1	75.0
$751- 1,500	16.7	36.4	52.9	74.7
Greater than $1,500	16.6	34.7	52.0	74.6
Private	14.8	31.7	44.6	66.0
$ 0 - 2,500	17.3	38.1	51.2	71.1
$2,500 - 3,000	14.7	35.0	47.0	68.6
$3,000 - 3,500	14.8	29.6	44.2	66.2
Greater than $3,500	13.2	27.5	42.5	63.7

solely be used to judge the relative financial need at different schools since the ability of parents with similar incomes to meet the expenses of their offspring is less at schools with higher tuitions. Thus, although higher tuition private schools enroll proportionally more affluent students, their student bodies do not necessarily exhibit a lower degree of financial need.

Table 4 presents trend information on the average number and the proportion of medical students demonstrating need in medical schools differentiated by their affiliation and tuition. The data for the 1973-74 academic year show distinct differences between public and private schools in the proportion of students demonstrating need. In public schools, the number of financially needy students composed 56.7 percent of all enrolled medical students while in private schools, the proportion of needy was 61.6 percent. Thus, the greater median income of parents with children in private schools was not sufficient to insure that the number of students needing aid in such schools was any less than in public schools. Among public schools, the proportion of needy students was larger in the high tuition schools. No such relationship was apparent between tuition and the proportion of needy students in private schools.

Between 1973-74 and 1975-76, the number of students demonstrating need increased by 8.3 percent at public schools and by 7.9 percent at private schools. Public schools with the highest tuitions exhibited the most notable increase (21.4 percent) while private schools with the lowest tuitions exhibited a decrease of 8.9 percent in the number of needy students. Relative to enrollment, however, the number of needy students declined at both public and private schools. Among public schools the decline was particularly evident among schools with lower tuitions. For instance, whereas the proportion of needy students decreased by 6.2 percentage points in public schools with the lowest tuitions, the proportion of needy students in public schools with highest tuitions actually increased by 2.9 percentage points. Private schools with lower tuitions also tended to exhibit larger decreases in the proportion of needy students than did their higher tuition counterparts.

TABLE 4

Number and Proportion of Medical Students Demonstrating Need
By Control and Tuition Level of Medical School, 1973-74 Through 1975-76

Control and Tuition Level	Average Enrollments				No. of Students Determined Needy*				Proportion of Students Determined Needy			
	1973-74	1974-75	1975-76	Percent Change**	1973-74	1974-75	1975-76	Percent Change**	1973-74	1974-75	1975-76	Percent Change**
All Schools	451.0	477.7	500.0	10.9%	265.8	274.0	288.7	8.2%	58.9	57.4	57.7	- 1.2%
Public	441.7	467.4	495.6	12.2	250.5	259.2	273.1	8.3	56.7	55.5	55.1	- 1.6
$0-750	317.5	349.8	395.8	24.6	165.8	175.0	182.2	9.9	52.2	50.0	46.0	- 6.2
$751-1500	435.9	453.6	473.7	8.7	245.4	261.0	258.1	5.2	56.3	57.5	54.5	- 1.8
More than $1500	583.0	626.5	653.4	12.1	324.0	327.0	393.3	21.4	55.6	52.2	60.2	+ 2.9
Private	463.6	491.6	506.0	9.1	285.6	292.9	308.8	7.9	61.6	59.6	61.0	- .6
$0-2500	422.4	432.7	464.6	7.6	271.2	275.3	247.0	- 8.9	64.2	63.6	53.2	-11.0
$2501-3000	461.0	481.5	487.5	5.7	263.3	268.4	289.1	9.7	57.1	55.7	59.3	- 2.2
$3001-3500	486.7	538.6	548.4	12.7	300.8	311.0	350.1	16.3	61.8	58.6	63.8	+ 2.1
More than $3500	481.7	503.0	511.0	6.1	280.4	301.6	285.8	1.9	58.2	60.0	55.9	- 2.3

*These data are estimated from (1) the medical school's assessment of total need among the students that apply to them for aid and (2) an added amount representing the need of students not applying to the medical school. For more information on estimation techniques, see Appendix C.
**Percent change from 1973-74 to 1975-76.

The above data showed a particularly large increase in the number of needy students in public schools with the highest tuitions. This growth, by 1975-76, put these schools on a par with private schools in their financial aid need requirements.

The number of needy students gives a good indication of financial aid need but it does not take into account the amount needed by different students. Thus, although a school's financial aid need may be characterized by a large number of students in need, the total need at this school may equal that of another school that has fewer needy students but a greater amount of average need among these students. A measure that takes into account both the number of students in need and the average amount of financial aid required is the total amount of financial aid required at a particular medical school.

In the 1973-74 academic year, the average need demonstrated at individual schools ranged from a low of 35 thousand dollars to well over a million dollars. Although public schools, on the average, exhibited significantly less need than private schools, they showed greater variation in their need requirements (Table 5). When schools were collapsed into broad tuition categories, for instance, the range of financial need for public schools was 560 thousand dollars--from a low of 424.1 thousand dollars to a high of 983.2 thousand dollars for those with the highest tuitions. The range in financial need for private schools, on the other hand, was only 339 thousand dollars--from an average of 908.2 thousand dollars to an average of 1.25 million dollars. Among public schools, need tended to be greater for high tuition schools than for low tuition schools; however, no such association was apparent for private schools.

The growth in the average amount of financial aid needed per school between 1973-74 and 1975-76 was most apparent among public schools with tuitions of more than $1,500 and private schools with tuitions of from $2,501 to $3,600. Because of the large increases in such need among the public schools with the highest tuitions (62.2 percent) and the relatively smaller growth among private schools, the need requirements at these public schools, were, in 1975-76, at a

TABLE 5

Average Amount of Financial Aid (in thousands of dollars) Needed at Medical Schools By Control and Tuition Level of School, 1973-74 Through 1975-76*

Control and Tuition Level	1973-74	1974-75	1975-76	Percent Change 1973-74 Through 1974-75
All Schools	$ 889.8	$1,096.1	$1,211.7	36.2%
Public	716.0	904.6	1,017.7	42.1
$ 0 - 750	424.1	485.9	609.1	43.6
$751 - 1,500	724.7	914.8	965.7	33.3
Greater than $1,500	983.2	1,331.9	1,594.8	62.2
Private	1,104.4	1,320.2	1,472.0	33.3
$ 0 - 2,500	1,042.5	1,029.0	1,075.3	3.1
$2,501 - 3,000	908.2	1,199.0	1,274.4	40.3
$3,000 - 3,500	1,246.7	1,478.5	1,805.3	44.8
Greater than $3,500	1,118.5	1,400.0	1,424.9	27.4

* These data are estimated from (1) the medical school's assessment of total need among the students that apply to them for aid and (2) an added amount representing the need of students not applying to the medical school. For more information on estimation techniques, see Appendix C.

comparative level with the most expensive private schools.

Between 1973-74 and 1975-76, there was an increase in the range of average need among public and private schools with different tuition levels. For instance, the range of average demonstrated need among public schools with different tuitions increased from 559 to 986 thousand dollars from 1973-74 to 1975-76. For private schools, this range increased from 339 to 730 thousand dollars. From this data, it is apparent that although financing needs were increasing for all schools, they were increasing at a greater rate among public and private schools with high tuitions.

Thus far, the study has explored the degree to which financial aid was required by students enrolled in private or public schools with different tuition rates. Essentially, this is an analysis of the demand for aid. In the following section, the supply of financial aid assistance is examined by focussing on the distribution of loans and scholarships.

B. Distribution of Financial Aid Resources

1. Loans and Scholarships Administered by the Medical Schools:

Financial assistance to medical students is provided from a number of agencies, foundations and institutions. One of the primary suppliers of financial aid to students in the past has been the medical school itself, which distributes aid not only its own funds but also administers funds from other loan and scholarship sources. Between 1973-74 and 1975-76, the ability of medical schools to meet the needs of their students declined, although the amount of funds distributed by the schools increased. For instance, medical schools provided 51.1 million dollars in 1973-74 to their students (Table 6). By 1975-76, this amount rose to 53.6 million dollars--an increase of 2.5 million dollars or almost 5 percent over the 1973-74 figure. At the same time, need increased from 97.9 million dollars to 134.7 million dollars, or by 37.6 percent. Part of the reason for the inability of

TABLE 6

Trends in the Distribution of Financial Aid
By Source, 1973-74 Through 1975-76

Sources	Amount (in millions) 1973-74		1974-75		1975-76	
Aid Administered By Schools	$51.1		$54.6		$53.6	
Loans	31.1		32.7		33.5	
Health Professions	22.4		21.9		19.9	
School Funds	6.5		8.8		10.4	
Guaranteed		2.0		2.7		4.1
Not Guaranteed		4.5		6.1		6.3
Other Sources	2.2		2.0		3.2	
Robert Wood Johnson		1.2		1.0		1.0
Other		1.0		1.0		2.2
Scholarships	20.0		21.9		20.1	
Health Professions	5.5		4.2		2.0	
School Funds	11.4		14.4		15.2	
Other Sources	3.1		3.3		2.9	
Robert Wood Johnson		1.6		1.3		1.3
Other		1.5		2.0		1.6
Aid Not Administered By Schools	$41.2		$67.5		$94.5	
Loans	26.3		36.5		47.8	
AMA-ERF	3.0		3.9		5.5	
Guaranteed Loans	21.3		28.6		37.1	
Other Loans	2.0		4.0		5.2	
Scholarships	14.9		31.0		46.7	
Armed Forces HPS	8.1		15.0		20.6	
Public Health Service Corps	0.6		8.2		16.7	
Other Scholarships	6.2		7.8		9.4	
National Medical Fellowship		2.5		2.1		1.7
Physician Shortage Area		--		1.9		2.0
Other		3.7		3.8		5.7
TOTAL AID	92.3		122.1		148.1	

the medical schools to keep pace with the rising need for financial aid was the gradual decrease of funds from the Health Professions Loan and Scholarship programs.

a. Loans: In each of the years from 1973-74 to 1975-76, approximately 60 percent of all school-administered aid was distributed in the form of loans. The two major sources of these loan funds were the Health Professions Loan Program and the schools themselves.

- Health Professions Loans

Since its inception in 1963, the Health Professions Loan Program has been one of the primary sources of financial assistance for medical students. In the 1973-74 academic year, for instance, almost 22.4 million dollars--or just under one-quarter of all funds distributed to medical students--were supplied by this source. Two years later, 19.9 million dollars were disbursed from this source and, although still substantial, this amount represented a per-school drop of 12.4 percent from the average amount of Health Profession Loan funds supplied to schools in 1973-74 (Table 7). This decrease was generally reflected by most medical schools, regardless of their affiliation and tuition level with the exception of public schools with tuitions of $750 or less, which distributed on the average 9.8 percent more of these loans in 1975-76 than in 1973-74.

Funds distributed from Health Profession Loans in 1973-74 were instrumental in meeting 27.7 percent of the need demonstrated at public schools and only 19.1 percent of such need at private schools (see lower half of Table 7). In 1975-76, this difference was still notable, although to a lesser degree. The proportion of need that was met through these loan funds dropped 10.3 percentage points in public schools and only 6.9 percentage points in private schools. Public schools with higher tuitions exhibited a larger decrease than those with lower tuitions while the decrease for private schools did not seem to be associated with the tuition level of the school.

In sum, loan funds provided through Health Professions Loans failed to keep pace with the growing need for financial assistance. This failure had a

TABLE 7

Average Amount of Loan Aid Distributed Through the Medical School
By Control and Tuition Level of School, 1973-74 Through 1975-76

Average Amount of Aid Distributed Per School (in thousands)

Control and Tuition Level	Health Professions Loans				Loans From School Funds				Loans From Other School-Administered Sources			
	1973-74	1974-75	1975-76	Percent* Change	1973-74	1974-75	1975-76	Percent* Change	1973-74	1974-75	1975-76	Percent* Change
All Schools	203.3	194.0	178.1	-12.4%	58.9	79.0	94.2	59.9%	20.3	18.1	29.0	42.9%
Public	197.9	191.4	177.2	-10.5	36.4	56.1	57.8	58.8	25.2	20.8	32.7	29.8
$ 0 - 750	124.3	120.6	136.5	9.8	8.8	11.4	50.2	470.5	13.1	25.9	24.4	86.3
$751 - 1,500	198.6	195.0	178.0	-10.4	35.9	63.1	69.2	92.8	29.3	14.9	33.8	15.4
Greater than $1,500	276.4	268.3	238.9	-13.6	67.1	85.8	35.8	-46.6	26.8	37.1	39.2	46.3
Private	210.7	197.5	179.2	-15.0	88.5	110.8	143.7	62.4	13.6	14.6	24.0	76.5
$ 0 - 2,500	172.9	172.1	139.2	-19.5	24.5	67.4	37.2	51.8	15.3	2.0	4.2	-72.5
$2,501 - 3,000	196.7	198.8	168.4	-14.4	107.7	85.9	110.9	3.0	13.2	14.5	8.4	-36.4
$3,001 - 3,500	237.3	220.3	207.3	-12.6	110.6	150.1	215.4	94.8	9.4	20.0	17.3	84.0
Greater than $3,500	207.8	178.6	173.3	-16.6	77.0	100.7	137.0	77.9	19.1	13.4	64.1	235.6

Proportion of Demonstrated Need Met

Control and Tuition Level	Health Professions Loans				Loans From School Funds				Loans From Other School-Administered Sources			
	1973-74	1974-75	1975-76	Diff.**	1973-74	1974-75	1975-76	Diff.**	1973-74	1974-75	1975-76	Diff.**
All Schools	22.8%	17.7%	14.7%	-8.1%	6.6%	7.2%	7.7%	1.2%	2.3%	1.6%	2.4%	0.1%
Public	27.7	21.2	17.4	-10.3	5.1	6.2	5.7	0.6	3.5	2.3	3.2	-0.3
$ 0 - 750	29.3	24.8	22.4	-6.9	2.1	2.3	8.2	6.1	3.1	5.3	4.0	0.9
$751 - 1,500	27.4	21.4	18.4	-9.0	4.9	6.9	7.2	2.3	4.0	1.6	3.5	-0.5
Greater than $1,500	28.2	20.1	15.0	-13.2	6.9	6.4	2.2	-4.7	2.7	2.8	2.5	-0.2
Private	19.1	15.0	12.2	-6.9	7.0	8.4	9.8	1.8	1.2	1.1	1.6	0.4
$ 0 - 2,500	16.6	16.7	12.9	-3.7	2.4	6.6	3.5	1.2	1.5	0.2	0.4	-1.1
$2,501 - 3,000	21.7	16.6	13.2	-8.5	11.9	7.1	8.7	-3.2	1.5	1.2	0.7	-0.8
$3,001 - 3,500	19.0	14.9	11.5	-7.5	8.8	10.2	11.9	3.1	0.8	1.4	1.0	0.2
Greater than $3,500	18.6	12.8	12.2	-6.4	6.9	7.2	9.6	2.7	1.7	1.0	4.5	2.8

*Percent Change From 1973-74 to 1975-76
**Difference Between 1973-74 and 1975-76 Percentages

greater impact on public schools--which used these funds to meet more than a quarter of their demonstrated need in 1973-74--and particularly among those public schools with higher tuition rates. Although private schools also showed decreases in their ability to meet need through Health Professions Loan funds, the impact of this decrease was lessened by their lower degree of dependence on these funds.

- Loans from School Funds

The second most important source of loan aid was the medical school, which could supply such funds with or without the backing of the federal or state governments, or other such outside guaranteeing agencies. In 1973-74, medical schools distributed 6.5 million dollars from these combined sources (Table 6). In 1975-76, 10.4 million dollars was supplied, an amount which represented a 59.9 percent increase over the average amount of funds supplied through school funded loans in 1973-74. This dramatic increase, however, belies the fact that only a small percentage of schools made guaranteed loans and that some schools, in fact, did not utilize any of their own funds in meeting their financial aid needs (see Table 8). In 1973-74 for instance, only 20 schools (or 19.2 percent of all schools) distributed their own funds through guaranteed loans while 75 (or 70.8 percent) distributed aid through non-guaranteed loans. By 1975-76, the number of schools distributing their funds through guaranteed loans increased by 2 and the number awarding non-guaranteed loans from their own sources increased by 12. Thus, although more schools awarded financial aid from their own funds in 1975-76, there was still a substantial minority that did not.

In these years, private schools were more likely to make both guaranteed and non-guaranteed loans from their funds, although this difference between public and private schools was most marked with respect to guaranteed loans. The lower proportion of public schools awarding aid from their own funds may be due in part to their being hindered from participating in guaranteed loan programs by legal restrictions imposed by their state governments.

Table 7 also presents information on the average amount of aid awarded by the schools from their own funds and the extent to which such aid met financial

TABLE 8

Number of Medical Schools Distributing Loans
From Their Own Funds by Type of Loan and Control of School,
1973-74 Through 1975-76

Control and Type of Loan	Academic Year 1973-74 No.	1973-74 Percent*	1974-75 No.	1974-75 Percent*	1975-76 No.	1975-76 Percent*
Guaranteed Loans						
All Schools:	20	19.2%	22	21.0%	22	20.7%
Public	6	10.3	8	13.1	8	13.1
Private	14	29.7	14	31.8	14	31.1
Nonguaranteed Loans						
All Schools:	75	70.8%	84	74.3%	87	77.7%
Public	38	64.4	44	67.7	49	75.4
Private	37	78.7	40	83.3	38	80.9

*Percents are calculated on the basis of all schools reporting data, which may vary from year to year.

need at these schools. (Table B-1 in Appendix B provides the same information broken out by guaranteed and non-guaranteed loans.) Changes between 1973-74 and 1975-76 in the extent to which these funds met demonstrated need can be summarized as follows. First, private schools, regardless of tuition level, awarded notably larger amounts of aid from their own funds than did public schools throughout the three-year period. Noteworthy in this respect are private schools with tuitions ranging from $3,001 to $3,500, which in 1975-76 distributed an average of 215.4 thousand dollars from their own sources. This average amount was more than twice that awarded by any other group of schools.

Second, the amount of aid distributed from school funds in subsequent years tends--for some groupings of schools--to fluctuate widely. As an example, public schools with tuitions greater than $1,500 distributed an average of 67.1 thousand dollars in 1973-74, 85.8 thousand dollars in 1974-75 and 35.8 thousand dollars in 1975-76. Such wide variations would indicate that school funds represent an undependable source of financial aid funds.

In terms of meeting need, private schools utilized their own funds to a greater extent than public schools during the period from 1973-74 to 1975-76. In 1973-74, public schools met only 5.1 percent of their need through such funds while private schools met 8.0 percent of their need. Although both public and private schools increased the proportion of financial aid need met through loans from their own funds, the growth was most evident among private schools. Among public schools, those with lower tuitions seemed to be using loans from their own funds to meet a larger proportion of their aid needs in 1975-76 than in 1973-74. In fact, public schools with the highest tuitions met 4.7 percent less of their need through these sources in 1975-76 than in 1973-74 while public schools with the lowest tuitions met 6.1 percent more of their need in 1975-76 than in 1973-74 through these funds. Among private schools the proportion of need met through the school funded loans did not consistently rise with tuition, although it should be noted that the higher tuition schools ($3,000) increased the proportion of need met through such funds between 1973-74 and 1975-76 to a larger extent than did the lower tuition private schools.

Overall, loan assistance from school sources showed signs of meeting a greater proportion of financial need in 1975-76 than in 1973-74, particularly for private schools. The availability of such funds probably depended on several factors, including 1) the financial resources of the medical school and 2) the ability of the medical school to legally participate in federal guaranteed loan programs as lenders. Such availability obviously worked against 1) public schools, which were restricted in use of their funds by their state legislatures, 2) those private schools that had difficulties in obtaining revenues to meet their expenditures, and 3) public and private schools that were experiencing both the loss of financial aid funds from other sources--such as the Health Professions Loans--and a growth in their financial need.

- Loans from Other School-Administered Sources

Medical schools, in addition to awarding loans from the Health Professions Loan Program and their own funds, administered funds from a variety of other loan sources (among which the Robert Wood Johnson Foundation is most prominent). In 1973-74, 2.2 million dollars or less than 2.5 percent of all aid was awarded from these combined sources. By 1975-76, these sources increased to over 3.2 million dollars. The amount of funds awarded from these sources was generally higher at public than private schools (Table 7), although the difference between the two types of schools decreased from 1973-74 to 1975-76. In 1973-74, the difference in these other loan funds between private and public schools averaged 11.6 thousand dollars while in 1975-76, the difference averaged 8.7 thousand dollars.

Among public schools, those with higher tuitions distributed more loan funds from these sources than those with the lowest tuitions; however, the most dramatic increase in these funds was among those public schools with the lowest tuitions. These lowest tuition schools also show the most dramatic rise in the ability to meet their financial aid needs through these other loan sources.

The change in the amount of these funds distributed by private schools related very highly to the tuition level of the school. For instance, schools with the highest tuitions experienced the largest

increase (235.6 percent) and private schools with the lowest tuitions exhibited the largest decrease (72.5 percent) in the average amount of aid awarded from such funds.

With respect to meeting demonstrated need, only private schools with the highest tuitions increased the proportion of financial aid need met through loans from other school-administered sources. Thus, whereas these schools were only able to satisfy 1.7 percent of their demonstrated need from such funds in 1973-74, they were able to satisfy 4.5 percent of it in 1975-76. This constituted a 2.8 percentage point increase, between 1973-74 and 1975-76.

b. Scholarships: In the years 1973-74 through 1975-76, medical schools administered approximately 20.0 million dollars annually in scholarships (Table 6). As with school-administered loans, the amount of aid distributed through scholarships failed to keep pace with the growth in financial aid need. Of the major sources of scholarship aid administered by the school, the Health Professions Scholarship Program and the medical schools themselves were the most important.

- Health Professions Scholarships

Between 1973-74 and 1975-76, the amount of Health Professions Scholarship funds distributed to medical students declined from 5.5 million dollars to 2.0 million dollars. This drop was uniformly reflected across all public and private schools regardless of their tuition level (Table 9), although private schools experienced a greater decrease (70.2 percent) than public schools (60.6 percent).

The decline in funds distributed through this scholarship program also led to a decline of 4.1 percent in the proportion of financial aid need that was met through these funds. Thus, whereas funds from the Health Professions Scholarship Program met approximately 5.6 percent of all need in 1973-74, they met only 1.5 percent of such need in 1975-76. The impact was felt slightly more by public schools than by private schools and, within each of these types, by schools with smaller tuitions than those with larger tuitions.

TABLE 9

Average Amount of Scholarship Aid Distributed Through the Medical School
By Control and Tuition Level of School, 1973-74 Through 1975-76

Average Amount of Aid Distributed Per School (in thousands)

Control and Tuition Level	Health Professions Scholarships				Scholarships From School Funds				Scholarships From Other School-Administered Sources			
	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*
All Schools	50.2	37.2	17.6	-64.9%	103.4	127.2	135.3	30.9%	28.3	30.4	26.7	-5.7%
Public	47.0	35.7	18.5	-60.6	55.9	75.8	96.8	73.2	23.9	27.4	28.4	18.8
$ 0 - 750	33.5	25.9	15.7	-53.1	17.4	22.1	16.9	-2.9	34.7	35.0	36.6	5.5
$751 - 1,500	47.5	37.4	17.9	-62.3	57.2	86.7	96.5	68.9	20.8	23.3	24.7	18.8
Greater than $1,500	60.5	42.6	26.3	-56.5	92.1	101.0	187.6	103.7	24.3	35.5	33.6	38.3
Private	54.4	39.1	16.2	-70.2	167.0	196.7	188.7	13:0	34.0	34.3	24.3	-28.5
$0 - 2,500	60.5	50.0	18.5	-69.4	155.3	147.3	124.1	-20.1	47.5	19.3	18.6	-60.9
$2,501 - 3,000	57.5	42.1	17.5	-69.6	148.2	202.9	180.3	21.7	23.0	12.1	12.3	-46.5
$3,001 - 3,500	55.2	35.6	14.7	-73.3	190.9	221.7	251.5	31.8	36.6	27.7	25.8	-29.5
Greater than $3,500	47.0	34.8	15.8	-66.4	157.4	183.9	141.8	-9.9	32.8	71.6	37.9	-15.5

Proportion of Demonstrated Need Met

Control and Tuition Level	Health Professions Scholarships				Scholarships From School Funds				Scholarships From Other School-Administered Sources			
	1973-74	1974-75	1975-76	Diff.**	1973-74	1974-75	1975-76	Diff.**	1973-74	1974-75	1975-76	Diff.**
All Schools	5.6%	3.4%	1.5%	-4.1%	11.6%	11.6%	11.2%	-0.4%	3.2%	2.8%	2.2%	-1.0%
Public	6.6	3.9	1.8	-4.8	7.8	8.4	9.5	1.7	3.3	3.0	2.8	-0.5
$0 - 750	7.9	5.3	2.6	-5.3	4.1	4.5	2.8	-1.3	8.2	7.2	6.0	-2.2
$751 - 1,500	6.6	4.1	1.9	-4.7	7.9	9.5	10.0	2.1	2.9	2.5	2.6	-0.3
Greater than $1,500	6.2	3.2	1.6	-4.6	9.4	7.6	11.8	2.4	2.5	2.7	2.1	-0.4
Private	5.0	3.0	1.1	-3.9	15.1	14.9	12.8	-2.3	3.1	2.6	1.7	-1.4
$ 0 - 2,500	5.8	4.9	1.7	-4.1	14.9	14.3	11.5	-3.4	4.6	1.9	1.7	-2.9
$2,501 - 3,000	6.3	3.5	1.4	-4.9	16.3	16.9	14.1	-2.2	2.5	1.0	1.0	-1.5
$3,001 - 3,500	4.4	2.4	0.8	-3.6	15.3	15.0	13.9	-1.4	3.0	1.9	1.4	-1.6
Greater than $3,500	4.2	2.5	1.1	-3.2	14.0	3.1	10.0	-4.0	2.9	5.1	2.7	-0.2

*Percent Change From 1973-74 to 1975-76
**Difference Between 1973-74 and 1975-76 Percentages

- Scholarships from School Funds

Scholarships awarded from school funds increased from 11.4 to 15.2 million dollars between 1973-74 and 1975-76--an average per-school increase of 30.9 percent over all schools (Table 6). These school scholarships were second in total amount only to Health Professions loans among all school administered aid. In general, public schools distributed a significantly smaller average amount of scholarship aid from their own funds than did private schools in each of the three years from 1973-74 to 1975-76 (Table 9). The amount of such aid distributed by public schools, however, increased by a larger percentage than the amount of aid distributed by private schools. For instance, the mean amount of school funded scholarship aid distributed in public schools in 1975-76 was 96.8 thousand dollars, an increase of 73.2 percent over the amount of such aid distributed in 1973-74. The comparable private school figure for scholarships from school funds was 188.7 thousand dollars--which was only 13.0 percent over the the amount disbursed in 1973-74.

For public schools, the amount of scholarship aid from school funds and the increase in this aid between 1973-74 and 1975-76 was positively related to tuition. Those public schools with the highest tuitions distributed an average of 187.6 thousand dollars in school funded scholarships in 1975-76, which was over double the average amount distributed in 1973-74. Public schools with the lowest tuitions distributed an average of 16.9 thousand dollars in 1975-76--a decrease of 2.9 percent over the comparable scholarship aid distributed in 1973-74.

Although the same general relationship between tuition and average amount of such scholarship aid existed for private schools (i.e., more high tuition private schools distributed more aid and increased the amount of funding from this source than low tuition private schools), those private schools with the highest tuitions represent a deviation from this pattern. Such schools gave out an average of 141.8 thousand dollars in school funded scholarships during 1975-76 (a decrease of 9.9 percent from funds distributed in 1973-74), a figure which was approximately 47 thousand dollars below the average for all private schools.

Funds provided through school scholarships generally rose with financial aid need between 1973-74 and 1975-76. In 1973-74, school scholarships satisfied 11.6 percent of all need and in 1975-76, they met 11.2 percent of financial aid need. Public schools, although not able to meet as much of their financial aid need as private schools through scholarships from their own funds, increased the portion of need met through such funds while the proportion of need met decreased in private schools between 1973-74 and 1975-76. For instance, public schools met 7.8 percent of their financial aid need in 1973-74 and 9.5 percent of this need in 1975-76 through these funds; the comparable figures for private schools were 15.1 percent and 12.8 percent. Among public schools, the use of these funds to satisfy need was most noticeable among higher tuition schools, which had also demonstrated the greatest increase in the proportion of need met during these years.

In private schools, the proportion of need met through school-funded scholarships decreased over the three-year period, regardless of tuition level. This decline, however, was particularly evident among private schools with the highest and lowest tuitions.

- Scholarships from Other School-Administered Sources

In 1973-74, 3.1 million dollars were distributed through other school-administered scholarships--such as the Robert Wood Johnson Scholarship (Table 6). In the 1975-76 academic year, the amount was 2.9 million dollars, an average per school decrease of 5.7 percent. As shown in Table 9, the decline in the use of these funds was most visible among private schools, which exhibited a 28.5 percent decrease in such aid (compared to the 18.8 percent decline exhibited by public schools). Thus, public schools, which awarded on the average less of these funds than private schools in 1973-74, distributed a greater average amount in 1975-76. Particularly noticeable was the drop in these funds between 1973-74 and 1975-76 in private schools. For both public and private schools, the relationship between the percent change in such funds over the three-year period and tuition is positive. For example, public schools with higher tuitions demonstrated a larger increase in such funds (38.3 percent) than low tuition public schools (5.5 percent),

while private schools with high tuitions were associated with smaller decreases than those with lower tuitions.

Scholarships from these other school-administered sources generally kept pace with the growth in financial aid need from 1973-74 to 1975-76. While public schools were able to meet approximately the same percent of their need in 1975-76 than in 1973-74, private schools were able to satisfy 1.4 percent less of their need during this period. Although for most schools, these other sources of scholarship aid accounted for a small proportion of financial aid need, public schools with the lowest tuitions showed a larger dependence on such aid than other schools.

c. Summary of Medical School Financial Aid Activity: Table 10 summarizes information on loans and scholarship aid administered by public and private schools grouped by their tuition rates. On the average, the financial aid administered by medical schools during this period increased by 3.6 percent and met 12.5 percent less of the financial aid need in 1975-76 than in the 1973-74 academic year. This decreased ability to meet financial aid requirements, which was felt equally at public and private schools, was experienced to a larger degree at higher tuition public schools than at lower tuition ones but at lower tuition private schools to a larger degree than at higher tuition private schools. The higher tuition schools suffered from the decline in Health Professions Loan and Scholarship funds and although they attempted to make up some of the losses through scholarships and loans awarded from their own funds, the substantial decrease in their ability to meet the large growth in demonstrated need was not averted. Lower tuition public schools, also suffering a decrease in funds, did not experience the same growth in financial aid need and thus were able to meet substantially more of their need than higher tuition public schools.

Although the proportion of need met through school administered funds decreased by 12.3 percent among private schools, those with higher tuition rates (greater than $3,000) exhibited a greater ability to meet their financial aid needs than their lower tuition counterparts. In general, these higher tuition schools experienced a greater increase in financial aid need

TABLE 10

Summary of Loans and Scholarships Distributed Through the Medical School
By Control and Tuition Level of School, 1973-74 Through 1975-76

Average Amount of Aid Distributed Per School (in thousands)

Control and Tuition Level	School-Administered Loans				School-Administered Scholarships				Total			
	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*
All Schools	282.5	291.1	301.3	6.7%	181.9	194.8	179.6	-1.3%	464.4	485.9	480.9	3.6%
Public	259.5	268.3	267.7	3.2	126.8	138.9	143.7	13.3	386.3	407.2	411.4	6.5
$ 0 - 750	146.2	157.9	211.1	44.4	85.6	83.0	69.2	-19.2	231.8	240.9	280.3	20.9
$751 - 1,500	263.8	273.0	281.0	6.5	125.5	147.4	139.1	10.8	389.3	420.4	420.1	7.9
Greater than $1,500	370.3	391.2	313.9	-15.2	176.9	179.1	247.5	39.9	547.2	570.3	561.4	2.6
Private	312.8	322.9	346.9	10.9	255.4	270.1	229.2	-10.3	568.2	593.0	576.1	1.4
$ 0 - 2,500	212.7	241.5	180.6	-10.4	263.3	216.6	161.2	-38.8	476.0	458.1	341.8	-28.2
$2,501 - 3,000	317.6	299.2	287.7	-9.1	228.7	257.1	210.1	-8.1	546.3	556.3	497.8	-8.9
$3,001 - 3,500	357.3	390.4	440.0	23.1	282.7	285.0	292.0	3.3	640.0	675.4	732.0	14.4
Greater than $3,500	303.9	292.7	374.4	23.2	237.2	290.3	195.5	-17.6	541.1	583.0	569.9	5.3

Proportion of Demonstrated Need Met

Control and Tuition Level	School-Administered Loans				School-Administered Scholarships				Total			
	1973-74	1974-75	1975-76	Diff.**	1973-74	1974-75	1975-76	Diff.**	1973-74	1974-75	1975-76	Diff.**
All Schools	31.7%	26.6%	24.9%	-6.8%	20.4%	17.8%	14.8%	-5.6%	52.2%	44.3%	39.7%	-12.5%
Public	36.2	30.0	26.3	-9.9	17.7	15.4	14.1	-3.6	54.0	45.0	40.4	-13.6
$ 0 - 750	34.5	32.5	34.7	0.2	20.2	17.1	11.4	-8.8	54.7	49.6	46.0	-8.6
$751 - 1,500	36.4	29.8	29.1	-7.3	17.3	16.1	14.4	-2.9	53.7	46.0	43.5	-10.2
Greater than $1,500	37.7	29.4	19.7	-18.0	18.0	13.4	15.5	-2.5	55.7	42.8	35.2	-20.5
Private	28.3	24.5	23.6	-4.7	23.1	20.5	15.6	-7.5	51.4	44.9	39.1	-12.3
$ 0 - 2,500	20.4	23.5	16.8	-3.6	25.3	21.0	15.0	-10.3	45.7	44.5	31.8	-13.9
$2,501 - 3,000	35.0	25.0	22.6	-12.4	25.2	21.4	16.5	-8.7	60.2	46.4	39.1	-21.1
$3,001 - 3,500	28.7	26.4	24.4	-4.3	22.7	19.3	16.2	-6.5	51.3	45.7	40.5	-10.8
Greater than $3,500	27.2	20.9	26.3	-0.9	21.2	20.7	13.7	-7.5	48.4	41.6	39.9	-8.5

*Percent Change From 1973-74 to 1975-76
**Difference Between 1973-74 and 1975-76 Percentages

but were able to generate loan assistance from their own funds or from other loan funds to compensate for the loss of aid provided by the Health Professions Loan and Scholarship Program. Important in this respect was the ability of some of these higher tuition schools to participate in the guaranteed loan program as lenders. Lower tuition private schools, however, did not utilize their own funds to meet the large growth in their financial aid needs. Thus, a school's ability to meet its aid needs through its own funds depended on the rise in such need and the capacity of the school to generate aid from its own funds or from other sources of aid.

2. Loans and Scholarships Administered by Institutions Other than the Medical Schools:

In 1973-74, the amount of aid distributed by institutions other than the medical school was reported at 41.2 million dollars, which represented approximately half of the 92.3 million dollars in total aid that was distributed in that year (Table 6). In 1975-76, institutions other than the medical school administered 94.5 million dollars--which constituted 63.7 percent of all aid administered in that year.

a. Loans: The major sources of loan funds other than those administered by the medical school were the American Medical Association-Education and Research Fund (AMA-ERF) guaranteed loan program and the various federal and state guaranteed loans made by banks as well as other lending institutions.

- AMA-ERF Loans

In 1975-76, the amount of assistance distributed by AMA-ERF was 5.5 million dollars, almost twice the amount that they distributed in 1973-74. On a per-school basis, this represented an overall increase of 77.2 percent or a rise of 13.2 percent for public schools and 156.5 percent for private schools (see Table 11). Students in public schools, although receiving more funds in 1975-76 than in 1973-74, were awarded a decreasingly smaller share of AMA-ERF loan program funds and in 1975-76 received, on a per-school basis, only 30 percent of all such loan funds.

TABLE 11

Average Amount of Loan Assistance Administered Through Non-Medical Schools Sources
By Control and Tuition Level of School, 1973-74 Through 1975-76

Average Amount of Aid Distributed Per School (in thousands)

Control and Tuition Level	AMA - ERF Loans				Guaranteed Loans				Other Loan Sources			
	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*
All Schools	28.9	37.1	51.2	77.2%	206.7	267.2	336.8	62.9%	19.9	38.7	47.1	136.7%
Public	28.8	30.0	32.6	13.2	144.1	196.2	268.6	86.4	13.9	34.8	41.6	199.3
$ 0 - 750	18.4	15.1	27.5	49.5	59.5	89.9	100.3	68.6	24.6	54.7	73.0	196.7
$751 - 1,500	22.8	26.2	27.4	20.2	144.5	191.8	244.7	69.3	10.7	21.3	38.0	255.1
Greater than $1,500	64.7	63.2	58.9	-9.0	235.8	319.2	535.6	127.1	12.7	60.0	28.9	127.6
Private	29.2	46.7	74.9	156.5	287.5	357.8	428.3	49.0	27.4	43.5	54.5	98.9
$ 0 - 2,500	26.5	46.2	75.3	184.2	205.1	242.1	324.0	58.0	10.8	22.6	70.4	551.9
$2,501 - 3,000	13.1	19.6	26.0	98.5	219.7	242.6	284.6	29.5	38.5	59.0	35.7	-7.2
$3,000 - 3,500	36.9	60.0	95.9	159.9	333.6	444.4	540.0	61.9	22.0	25.1	52.6	139.1
Greater than $3,500	33.5	54.2	95.6	185.[illegible]	330.1	408.2	478.8	45.0	36.9	67.3	68.1	84.6

Proportion of Demonstrated Need Met

Control and Tuition Level	AMA - ERF Loans				Guaranteed Loans				Other Loan Sources			
	1973-74	1974-75	1975-76	Diff.**	1973-74	1974-75	1975-76	Diff.**	1973-74	1974-75	1975-76	Diff.**
All Schools	3.2%	3.4%	4.2%	+1.0%	23.2%	24.4%	27.8%	+4.6%	2.2%	3.5%	3.9%	+1.7%
Public	4.0	3.3	3.2	-0.8	20.2	21.7	26.4	+6.2	1.9	3.9	4.1	+2.2
$ 0 - 750	4.3	3.1	4.5	+0.2	14.0	18.5	16.5	+2.5	5.8	11.3	12.0	+6.2
$751 - 1,500	3.1	2.9	2.8	-0.3	19.9	21.0	25.3	+5.4	1.5	2.3	3.9	+2.4
Greater than $1,500	6.6	4.8	3.7	-2.9	24.0	24.0	33.6	+9.6	1.3	4.5	1.8	+0.5
Private	2.6	3.5	5.1	+2.5	26.0	27.1	29.1	+3.1	2.5	3.3	3.7	+1.2
$ 0 - 2,500	2.5	4.5	7.0	+4.5	19.7	23.5	30.1	+10.4	1.0	2.2	6.5	+5.5
$2,501 - 3,000	1.4	1.6	2.0	+0.6	24.2	20.2	22.3	-1.9	4.2	4.9	2.8	-1.7
$3,000 - 3,500	3.0	4.1	5.3	+2.3	26.8	30.1	29.9	+3.1	1.8	1.7	2.9	+1.1
Greater than $3,500	3.0	3.9	6.7	+3.7	29.5	29.2	33.6	+4.1	3.3	4.8	4.8	+1.5

*Percent Change From 1973-74 to 1975-76
**Difference Between 1973-74 and 1975-76 Percentage.

Public schools with lower tuitions exhibited a greater growth in the amount of funds than those public schools with higher tuitions. This larger increase in AMA-ERF funds in schools with lower tuitions led to a reduction in the disparity between such schools and public schools with the highest tuitions, which were funded to a greater degree in each of the three years.

Among private schools, those with the lowest tuitions used 184.2 percent more AMA-ERF loans in 1975-76 than in 1973-74 and were among the largest users of such funds in 1975-76. Except for these schools, the data show a positive relationship between tuition level and growth in the use of such funds.

The increased funding from the AMA-ERF loan program met 1.0 percent more need in 1975-76 than it did in 1973-74. The proportion of need that was met through these funds decreased by less than 1.0 percent at public schools but increased by 2.5 percent at private schools between 1973-74 and 1974-75. Public schools with higher tuitions tended to exhibit a larger drop in the proportion of need met through these loan funds than public schools with lower tuitions. Public schools with the highest tuitions met 3.7 percent of their demonstrated need in 1975-76--2.9 percentage points less than in 1973-74--while public schools with the lowest tuitions met 4.5 percent of their need in 1975-76--an increase of 0.2 percentage points.

Private schools with the lowest tuitions increased their ability to meet demonstrated need by the most--4.5 percentage points. Other than this group of schools, tuition level and the change in proportion of need met through such funds were positively related. Thus, private schools with higher tuitions generally exhibited the largest increase in financial aid need as well as the highest proportion of need met through AMA-ERF funds.

- Guaranteed Loans

Guaranteed loans include those funds insured by the federal and state governments in which the lending institutions are banks and other such associations. In 1973-74, the amount of aid in the form of insured loans distributed by banks and other institutions was 21.3 million dollars whereas in 1975-76, this aid equalled 37.1 million dollars (Table 6). This amount represents a per-school increase of 62.9 percent (Table 11). Although a larger amount of this aid was utilized in private schools in each of the years from 1973-74 to 1975-76, the largest growth was exhibited by public schools, in which such loan aid grew by 86.4 percent (compared with the 49.0 percent growth in private schools). Among all public schools, those with the highest tuitions demonstrated the largest growth in these loan funds and were also funded to the greatest extent by these loans. For example, the amount of funds used by high tuition public schools increased from an average of 235.8 to an average 535.6 thousand dollars between 1973-74 to 1975-76. On the other hand, in public schools with the lowest tuitions, guaranteed loan aid increased from an average of 59.5 to an average of 100.3 thousand dollars during this period. For private schools, the growth in these funds did not seem to correspond to tuition level, although those schools with tuitions of more than $3,000 exhibited more funding from guaranteed loan sources.

In general, the extent to which these guaranteed loan funds met financial needs increased from 23.2 percent to 27.8 percent from 1973-74 to 1975-76.

Public schools, although lagging behind private schools in the proportion of financial aid need met through these guaranteed loan funds, experienced an increase of 6.2 percentage points in meeting such need by these funds, while the comparable figure for private schools was 3.1 percentage points. Among public schools, those with higher tuition met a greater proportion of their need through these funds than those with lower tuitions. In addition, higher tuition schools also demonstrated a greater increase in the proportion of need met through such funds. Thus, 33.6 percent of financial aid need was met in public schools with the highest tuitions in 1975-76--a figure that was 9.6 percent more than that exhibited in 1973-74. Only

16.5 percent of the demonstrated need in 1975-76 was met by such loans in public schools with the lowest tuitions--an increase of 2.5 percentage points.

Private schools with the lowest tuitions experienced the largest increase in the proportion of demonstrated need met between 1973-74 and 1975-76--10.4 percentage points. Outside of these lowest tuition schools, the level of tuition seems to be positively related to both the 1) proportion of need met in 1975-76 and 2) increase in the proportion of need met. For both public and private schools, there was a growing disparity between high and lower tuition schools in the use of these funds to meet needs. Thus, higher tuition schools, compared to lower tuition schools, exhibited increased use of these guaranteed loans to meet financial aid needs.

- Other Loan Sources

Other loans that were not administered by the medical school accounted for 5.2 million dollars in 1975-76--a per-school increase of 136.7 percent over the amount distributed in 1973-74 (Table 6). This increase was most notable among public schools, which exhibited an almost 200 percent increase (Table 11). Still these schools did not use as much assistance from these sources as private schools. For instance, the average amount of such aid distributed in 1975-76 was 41.6 thousand dollars among public and 54.5 thousand dollars among private schools.

For all schools, the proportion of need met through these funds increased from 2.2 percent to 3.9 percent. This increase was larger for public schools (2.2 percentage points) than private schools (1.2 percentage points). The increase was also larger among those public schools with the lowest tuitions (6.2 percentage points) than those with larger tuitions. The proportion of need met through these other loans was most noticeable in public schools with the lowest tuitions, which met 12.0 percent of all need. Private schools with the lowest tuitions exhibited a drop of 5.5 percent in financial need that was met through these funds. Apart from these schools, private schools with higher tuitions made greater use of these loan funds to meet need.

In sum, loans not administered by the schools met 33.7 percent of the need in public schools and 37.9 percent in private schools in 1975-76, a difference of 7.6 and 6.8 percent from the proportions in 1973-74 (Table 12). All public schools, regardless of tuition level, demonstrated a fairly uniform level of growth in such funds between 1973-74 and 1975-76. In private schools, two patterns were evident. Private schools with the lowest tuitions showed the largest increase in the proportion of need met through these loan funds. The proportion of need met rose from 23.3 percent in 1973-74 to 43.6 percent in 1975-76. Such aid thus constituted a major source of funds for these schools in 1975-76. In other private schools, the use of these funds to meet financial aid need was larger among higher tuition schools. In addition, the growth in these proportions also varied directly with tuitions.

b. Scholarships: Scholarship aid not administered by the schools include Physician Shortage Area Scholarships, National Medical Fellowship, Inc. scholarships and other programs that are awarded on need, as well as Public Health and National Health Service Corps and Armed Forces Health Professions scholarships that are awarded as payment for future services. Table 12 summarizes the need-based scholarships not administered through the school and Table 13 summarizes the PH/NHSC and Armed Forces scholarships.

- Need Based Scholarships

In 1975-76, need-based non-school administered scholarship sources constituted approximately 9.4 million dollars, which was 3.2 million dollars more than in 1973-74 (Table 6). In 1973-74, the amount of aid distributed through these scholarships averaged 48.4 thousand dollars in public schools and 72.7 thousand dollars in private schools (Table 12). The comparable figures for 1975-76 were 79.8 thousand dollars for public schools and 94.2 thousand dollars for private schools. Among public schools, the amount of such aid was highest at schools with larger tuitions, although the increase in such funds between 1973-74 and 1975-76 was higher in public schools with lowest tuitions.

Table 12

Average Amount of Aid Administered Through Non-Medical School Sources
By Control and Tuition Level of School, 1973-74 Through 1975-76

Average Amount of Aid Distributed Per School (in thousands)

Control and Tuition Level	Loans				Scholarships				Total			
	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*
All Schools	255.5	343.0	435.1	70.3%	58.9	73.2	85.8	45.6%	314.4	416.2	520.9	65.7%
Public	186.8	261.0	342.8	83.5	48.4	69.3	79.8	64.9	235.2	330.3	422.6	79.7
$ 0 - 750	102.6	159.7	200.8	95.7	19.5	45.6	50.0	156.4	122.1	205.3	250.8	105.4
$751 - 1,500	178.0	239.3	310.1	74.2	51.2	67.4	68.1	33.0	229.2	306.7	378.2	65.0
Greater than $1,500	313.2	442.4	623.4	99.0	65.8	100.2	152.1	131.2	379.0	542.6	775.5	104.6
Private	344.1	448.0	557.7	62.1	72.7	78.4	94.2	29.6	416.8	526.4	651.9	56.5
$ 0 - 2,500	242.4	310.9	469.7	93.8	68.9	93.0	68.1	-1.2	311.3	403.9	537.8	72.8
$2,501 - 3,000	271.3	321.2	346.3	27.6	96.7	63.2	78.9	-18.4	368.0	384.4	425.2	15.5
$3,000 - 3,500	392.5	529.5	688.5	75.4	64.4	87.0	109.1	69.4	456.9	616.5	797.6	74.6
Greater than $3,500	400.5	529.7	642.5	60.4	66.6	72.5	104.1	56.3	467.1	602.2	746.6	59.8

Proportion of Demonstrated Need Met

Control and Tuition Level	Loans				Scholarships				Total			
	1973-74	1974-75	1975-76	Diff.**	1973-74	1974-75	1975-76	Diff.**	1973-74	1974-75	1975-76	Diff.**
All Schools	28.7%	31.2%	35.9%	7.2%	6.6%	6.7%	7.1%	0.5%	35.3%	38.0%	43.0%	7.8%
Public	26.1	28.9	33.7	7.6	6.8	7.7	7.8	1.0	32.9	36.5	41.5	8.6
$ 0 - 750	24.2	32.9	33.0	8.8	4.6	9.4	8.2	3.6	28.8	42.3	41.2	12.4
$751 - 1,500	24.5	26.2	32.1	7.6	7.1	7.4	7.1	0.0	31.6	33.5	39.2	7.6
Greater than $1,500	31.9	33.2	39.1	7.2	6.7	7.5	9.5	2.8	38.5	40.7	48.6	10.1
Private	31.2	33.9	37.9	6.7	6.6	5.9	6.4	-0.2	37.7	39.9	44.3	6.6
$ 0 - 2,500	23.3	30.2	43.6	20.3	6.6	9.0	6.3	-0.3	30.0	39.3	50.0	20.0
$2,501 - 3,000	29.9	26.8	27.2	-2.7	10.6	5.3	6.2	-4.4	40.5	32.1	33.3	-7.2
$3,000 - 3,500	31.5	35.8	38.1	6.6	5.2	5.9	6.0	0.8	36.6	41.7	44.2	7.6
Greater than $3,500	35.8	37.9	45.1	9.3	6.0	5.2	7.3	1.3	41.8	43.0	52.4	10.6

*Percent Change From 1973-74 to 1975-76
** Difference Between 1973-74 and 1975-76 Percentages

In 1973-74, the lower tuition private schools (≤$3,000) used a larger amount of these scholarship funds than higher tuition schools. The amount of aid from these scholarship sources, however, grew the most at higher tuition schools, so that by 1975-76, those private schools having the highest tuitions used greater amounts of these funds awarded on the basis of financial need.

These scholarship funds supported approximately the same proportion of need in 1975-76 as in 1973-74 with public schools experiencing a slightly larger increase than private schools. No relationship between tuition and the proportion of financial aid need met through these scholarships was found among either private or public schools. Higher tuition private schools, however, generally experienced an increase in the proportion of need met while the lower tuition private schools experienced a decline in this proportion.

- PH/NHSC and Armed Forces Scholarships

Beginning with the appearance of the Public Health and National Health Service Corps (PH/NHSC) and Armed Forces Health Professions scholarship programs in 1973, a substantial portion of financial assistance funds were awarded to medical students willing to commit themselves to a service obligation. In 1973-74, 8.7 million dollars were awarded through these scholarships (Table 6). Due to the gradual addition of new resources and students to these programs, the amount of funds increased to 23.2 million dollars in 1974-75 and to 37.3 million dollars in 1975-76.

Although these funds in 1973-74 constituted about a quarter of all financial assistance, they met less need, on a dollar to dollar basis, than other aid funds. Unlike other loan and scholarship funds during this period, these scholarship funds were not particularly directed at solving the financial problems of needy students, but rather at solving physician shortage problems. Thus, although some needy students would be expected to receive PH/NHSC scholarships, there was no guarantee that this would be the case.

The PH/NHSC and Armed Forces Health Professions scholarship funds provided more aid per student than

other aid sources and in many cases provided more than the amount of aid that was determined to be needed by the average student. For instance, both service scholarships provided a yearly stipend of $6,750 and payment of tuition and fees. The amount paid through these scholarships, which could easily exceed $10,000 for a number of private schools, is much greater than the estimated $4,147 needed by students demonstrating need in 1975-76. Other scholarship and loan sources, which were based on need, distributed substantially less per student than these scholarships and, in most cases, considerably less than the $4,147 required by students needing aid. Thus fewer students, and substantially fewer needy students, utilized these funds than other funds.

In 1975-76, an average of 359.0 thousand dollars were distributed in PH/NHSC and Armed Forces scholarships (Table 13). By law, the average amounts funded through these scholarships corresponded to tuitions. In public schools, which generally had lower tuitions than private schools, the amount of funds from these sources averaged 267.5 thousand dollars; in private schools, this amount averaged 479.1 thousand dollars.

The mean number of students receiving these scholarships increased 117.8 percent from 1973-74 to 1975-76. This increase was greater for 1) private (165.6 percent) than public schools (87.8 percent), 2) for private schools with higher tuitions than those with lower tuitions, and 3) for lower tuition public schools than higher tuition ones.

In 1975-76, an average of 50 students per school were receiving funds from these sources--30 from Armed Forces Health Professions scholarships and 20 from PH/NHSC scholarships. In general, the average number of students on these scholarships tended to be larger in private schools than in public schools. Of the students receiving such scholarships in private schools, 43.2 percent received PH/NHSC scholarships and 56.8 percent received Armed Forces scholarships. In public schools, however, the proportion receiving PH/NHSC scholarships was 37.0 percent while 63.0 percent received Armed Forces scholarships. Thus, PH/NHSC scholarships were found relatively more at private than at public schools.

TABLE 13

Financial Aid Administered From Public Health Service (PH/NHSC) Scholarships and Armed Forces Health Professions Scholarships By Control and Tuition Level of School, 1973-74 Through 1975-76

Average Amount of Aid Distributed Per School (in thousands)

Control and Tuition Level	PH/NHSC Scholarships				Armed Forces Health Professions Scholarship				Total			
	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*
All Schools	5.9	79.7	157.3	+	89.7	160.0	201.7	124.9%	95.6	239.7	359.0	275.5%
Public	3.7	63.7	110.0	+	94.3	168.3	157.5	67.0	98.0	232.0	267.5	172.9
$ 0 - 750	0.9	39.8	83.4	+	58.8	184.7	146.3	148.8	59.7	224.5	229.7	284.8
$751 - 1,500	3.1	69.6	108.1	+	105.8	174.5	165.6	56.5	108.9	244.1	273.7	151.3
Greater than $1,500	8.6	71.3	141.8	+	97.7	149.5	161.5	65.3	106.3	220.8	303.3	185.3
Private	8.8	98.7	221.3	+	84.2	151.3	257.8	206.2	93.0	250.0	479.1	415.2
$ 0 - 2,500	7.0	63.3	198.1	+	57.8	105.1	172.6	198.6	64.8	168.4	370.7	472.1
$2,501 - 3,000	3.9	94.2	203.2	+	127.2	218.8	283.0	122.4	131.1	313.0	486.2	270.9
$3,001 - 3,500	8.1	89.0	190.9	+	87.3	147.7	209.4	139.5	95.4	236.7	400.0	319.3
Greater than $3,500	17.0	141.2	308.9	+	52.3	118.6	361.4	591.0	69.3	259.8	670.3	867.2

Average Number of Students Receiving Aid

Control and Tuition Level	PH/NHSC Scholarships				Armed Forces Health Professions Scholarship				Total			
	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change	1973-74	1974-75	1975-76	Percent Change*
All Schools	2.2	10.3	20.0	**	20.8	26.7	30.1	44.7%	23.0	37.0	50.1	117.8%
Public	2.0	8.6	17.0	**	22.5	29.9	29.0	28.9	24.5	38.5	46.0	87.8
$ 0 - 750	1.5	5.6	20.4	**	22.4	35.2	35.0	56.3	23.9	40.8	55.4	131.8
$751 - 1,500	1.7	9.1	15.7	**	24.7	31.9	29.1	17.8	26.4	41.0	44.8	69.7
Greater than $1,500	3.7	9.9	18.0	**	17.9	22.3	22.8	27.4	21.6	32.2	40.8	88.9
Private	2.4	12.5	24.0	**	18.5	22.9	31.5	70.3	20.9	35.4	55.5	165.6
$ 0 - 2,500	3.3	13.4	22.0	**	20.6	24.3	22.8	10.7	23.9	37.7	44.8	87.4
$2,501 - 3,000	1.5	12.6	26.3	**	27.2	34.5	38.0	39.7	28.7	47.1	64.0	123.0
$3,001 - 3,500	1.6	8.9	19.3	**	14.9	18.2	26.6	78.5	16.5	27.1	45.9	178.2
Greater than $3,500	3.8	17.3	29.6	**	13.7	16.5	36.7	167.9	17.5	33.8	66.3	278.9

*Percent Change From 1973-74 to 1975-76

+Over 1,000 percent increase.
**Over 500 percent increase.

When public schools are compared by their tuition level, those with the lowest tuition tended to have a greater average number of students receiving awards from both of these scholarship sources. The relative number of students receiving PH/NHSC scholarships, however, was higher among higher tuition schools. For instance, there were .6 PH/NHSC scholarships for every Armed Forces scholarship in public schools with the lowest tuition while this ratio was .8 for public schools with the highest tuitions. In private schools, no clear relationship was apparent in the number of students on these scholarships by tuition level of the school.

C. Students' Economic Background and the Distribution of Financial Aid

Thus far, the emphasis has been on identifying differences in financial aid funding patterns among schools with different affiliations and tuition. Within these general types of schools, the distribution of aid from particular sources should, with the possible exception of the PH/NHSC and Armed Forces scholarship programs, reflect students' needs, which would be expected to be greatest among students from less affluent economic backgrounds. Considerable variation may exist, however, regarding the degree to which particular sources of aid are distributed to students from less affluent backgrounds.

One example of this variation is demonstrated in Table 14, which provides information on the distribution of funds from particular sources of aid in 1974-75 among students of different economic backgrounds. These data reflect the distribution of aid within schools differentiated by affiliation and tuition level. To illustrate, 49.6 percent of the funds awarded from Federal Health Professions Loans by public medical schools with tuition of $750 or less were disbursed to students from families with incomes of less than $10,000.

It is apparent from this table that sources of aid, even those based on need, were not uniformly oriented towards supporting students from less affluent

TABLE 14

Proportion of Financial Aid Funds Distributed to Students
Of Different Economic Background Within Schools of Similar Control and
Tuition Level by Source of Aid, 1974-75

Parental Income	Federal Health Professions Loan	School Loans	Federal Health Professions Scholarships	School Scholarships	AHA-ERF Loans	Guaranteed Bank Loans	PH/NHSC Scholarships	Armed Forces Health Professions Scholarships	Other Loans	Other Scholarships
Public Schools with Tuitions of $750 or Less										
Less than $10,000	49.6%	23.9%	33.3%	52.2%	20.0%	26.7%	24.3%	13.6%	26.5%	47.9%
$10,000-14,999	26.6	17.5	36.1	7.5	18.5	17.3	15.0	27.4	20.0	27.2
$15,000-19,999	8.0	13.2	7.1	7.0	24.4	22.7	19.2	10.0	17.3	6.4
$20,000-29,999	11.6	33.0	6.2	13.3	0.0	18.3	24.1	26.0	25.7	12.3
$30,000 or more	4.2	12.4	17.3	19.9	37.0	15.0	17.5	21.9	10.6	7.0
Public Schools with Tuitions Between $751 and $1500										
Less than $10,000	26.1%	28.2%	33.4%	31.5%	30.4%	22.0%	16.0%	22.2%	27.8%	37.2%
$10,000-14,999	32.9	28.6	28.4	26.1	21.0	24.0	13.3	24.0	27.7	21.9
$15,000-19,999	13.8	14.8	10.0	13.9	8.8	17.3	12.6	23.3	23.3	11.7
$20,000-29,999	17.3	21.6	13.7	21.9	23.6	28.7	25.2	14.4	10.6	14.9
$30,000 or more	9.8	9.8	14.6	6.6	16.3	8.0	32.9	16.2	10.6	13.8
Public Schools with Tuitions Greater than $1500										
Less than $10,000	25.8%	22.1%	30.3%	25.0%	6.7%	19.4%	15.8%	14.9%	25.4%	36.7%
$10,000-14,999	27.5	27.9	15.8	25.0	18.7	20.6	20.8	29.0	25.9	24.1
$15,000-19,999	20.3	16.3	30.0	20.6	31.5	23.7	14.4	25.5	15.8	11.3
$20,000-29,999	18.1	23.6	16.9	21.4	25.2	24.1	25.8	19.0	18.5	17.7
$30,000 or more	8.3	10.1	7.3	7.5	17.9	12.3	23.2	11.5	14.4	10.2

TABLE 14 (Cont'd)

Parental Income	Federal Health Professions Loan	School Loans	Federal Health Professions Scholarships	School Scholarships	AMA-ERF Loans	Guaranteed Bank Loans	PH/NHSC Scholarships	Armed Forces Health Professions Scholarships	Other Loans	Other Scholarships
Private Schools with Tuitions of $2500 or Less										
Less than $10,000	28.5%	28.2%	40.0%	41.8%	34.8%	18.8%	13.2%	19.4%	13.6%	45.1%
$10,000-14,999	24.0	23.7	39.2	19.9	23.7	27.9	19.6	23.2	31.8	28.8
$15,000-19,999	17.3	15.9	3.5	18.0	17.1	16.4	18.5	20.4	27.0	7.2
$20,000-29,999	17.1	17.2	13.2	8.5	16.5	13.9	26.0	23.5	19.8	6.4
$30,000 or more	12.9	14.9	4.0	11.9	7.9	23.0	22.7	13.6	7.9	12.5
Private Schools with Tuitions Between $2501 and $3000										
Less than $10,000	13.8%	22.1%	19.9%	25.4%	37.9%	27.5%	19.3%	19.1%	46.9%	28.8%
$10,000-14,999	25.7	29.3	43.5	32.4	21.3	26.5	35.9	12.7	21.2	22.7
$15,000-19,999	28.2	18.2	8.5	10.4	7.7	15.2	0.0	23.5	6.8	11.7
$20,000-29,999	17.5	13.6	12.8	18.5	21.2	18.0	14.8	22.2	23.0	23.0
$30,000 or more	14.8	16.8	15.2	13.2	11.9	12.9	30.0	22.7	2.2	16.9
Private Schools with Tuitions Between $3001 and $3500										
Less than $10,000	29.7%	33.5%	27.8%	36.7%	20.5%	19.3%	7.3%	16.3%	21.0%	22.5%
$10,000-14,999	19.6	14.0	25.4	19.7	24.0	20.8	4.1	29.8	24.8	11.8
$15,000-19,999	22.6	12.8	19.2	19.4	8.5	21.5	11.1	21.6	21.6	22.9
$20,000-29,999	18.8	24.0	19.9	19.2	32.8	21.4	50.0	19.9	19.1	22.3
$30,000 or more	9.4	11.7	7.6	5.2	14.3	17.0	27.5	12.5	13.5	20.5
Private Schools with Tuitions Greater than $3501										
Less than $10,000	23.7%	16.5%	42.6%	27.3%	20.3%	17.6%	57.9%	3.3%	14.0%	19.7%
$10,000-14,999	24.5	16.1	28.6	20.1	17.7	20.6	42.1	15.5	26.0	15.3
$15,000-19,999	20.9	26.6	15.3	28.9	17.3	19.4	0.0	27.5	12.3	17.9
$20,000-29,999	17.4	23.0	5.6	17.9	22.7	25.6	0.0	23.7	21.6	18.6
$30,000 or more	13.6	17.3	7.8	5.8	21.8	16.8	0.0	29.2	34.1	18.5

backgrounds. For instance, among public schools with tuitions of less than $750, the proportion of funds awarded to students from families earning less than $10,000 varied from a low of 23.9 percent from school loans to a high of 49.6 percent from Health Professions Loans. Similarly, among private schools with tuitions of $2,500 or less, the proportion of funds awarded to students from families earning less than $10,000 varied from 18.8 percent from guaranteed loans to 45 percent from school-funded scholarships.

The distribution of aid from a particular source to students of different economic backgrounds also varied by category of school. For instance, the proportion of aid given to students from families with incomes of less than $10,000 from the Health Professions Loan Program varied from a high of 49.6 percent among public schools with tuitions of $750 to a low of 13.8 percent among private schools with tuitions of $2,601 to 3,000. Reasons for the differences in the degree to which certain aid was distributed to students from lower-economic backgrounds may have been related to institutional variation in financial aid packaging practices, need assessment procedures and other practices that may have encouraged students to take advantage of other outside sources of funding.

Table 15 presents the proportion of funds from particular sources of aid received by students from families earning less than $20,000 gross income, by affiliation and tuition level of medical school. Although $20,000 is a relatively high income by most standards, there is evidence that over half of the medical students had, in 1974-75, parents with incomes under this figure. There is also data that indicate the proportion of students determined to need aid was over 50 percent. It seems reasonable that the maximum contribution from parents earning less than $20,000 will, in a majority cases, be insufficient to pay tuition and other educational expenses as well as to provide the student with a minimum standard of living. Because of the smaller tuitions at public schools, the contributions needed to support a student will be less, although not substantially less, at these schools. The rankings presented in Table 15 help in evaluating the relative importance of each source of aid in meeting the needs of these students from less affluent families.

TABLE 15

Proportion of Aid Received by Students From Families Earning Less Than $20,000
By Source of Aid, Control and Tuition Level of Medical School, 1974-75*

Tuition	Federal Health Professions Loan	School Loans	Federal Health Professions Scholarships	School Scholar-ships	AMA-ERF Loans	Guaranteed Bank Loans	PH/NHSC Scholar-ships	Armed Forces Health Professions Scholarships	Other Loans	Other Scholar-ships
	Public Schools (Proportion)									
$0-750	84.2%	54.6%	76.5%	66.7%	62.9%	66.7%	58.5%	51.0%	63.8%	81.5%
$751-1500	72.8	73.6	71.8	71.5	60.2	63.3	41.9	69.5	67.8	70.8
Greater than $1500	73.6	66.3	76.1	70.6	56.9	63.7	51.0	68.4	67.1	72.1
	Public Schools (Rankings)									
$0-750	1	9	3	4	7	4	8	10	6	2
$751-1500	3	2	4	5	9	8	10	7	1	6
Greater than $1500	2	7	1	4	9	8	10	5	6	3
	Private Schools (Proportion)									
$0-2500	69.8%	67.8%	82.7%	79.7%	75.6%	63.1%	51.2%	63.0%	72.4%	81.1%
$2501-3000	67.7	79.6	81.9	68.2	66.9	69.2	55.2	55.3	74.9	60.2
$3001-3500	71.9	60.3	72.4	75.8	53.0	61.6	22.5	67.7	67.4	57.2
Greater than $3500	69.3	59.2	86.4	76.3	55.3	57.6	100.0	46.3	52.3	52.9
	Private Schools (Rankings)									
$0-2500	6	7	1	3	4	8	10	9	5	2
$2501-3000	6	2	1	5	7	4	10	9	3	8
$3001-3500	3	7	2	1	9	6	10	4	5	8
Greater than $3500	4	5	2	3	7	6	1	1	9	8

*Parental Income of less than $20,000, although high for the general population, includes approximately 50 percent of the medical students enrolled in 1974-75.

The proportions and ranking suggest differences between public and private schools in how students from families earning less than $20,000 were supported. Among public schools, Federal Health Professions Loan and Scholarship funds were particularly important in funding these students. Also important in this respect were school scholarships, which never ranked lower than fifth (or below the median) among all aid sources. Least important in supporting students from these economic backgrounds were PH/NHSC and Armed Forces Scholarships.

The proportion of funds awarded to such students from particular sources of aid differed somewhat among schools with different tuition rates. For instance, the lowest tuition private schools (<$2,500) exhibited greater use of school loans and AMA-ERF to meet the needs of the students from these economic backgrounds than private schools with tuition larger than $3,000. The patterns of support, however, did not have any apparent relationships to tuition, with the exception of AMA-ERF funds, which were more likely to be awarded to such students in low tuition schools than to those in high tuition schools. The degree to which other sources were supporting students varied widely by category of school and not in accordance with the tuitions of those schools.

There was considerable variation in the financial aid distribution patterns between public schools with different tuitions. For instance, public schools with tuitions of $750 tended to use Federal Health Professions Loans to meet the needs of students from families earning $20,000 or less to a larger extent than other schools. PH/NHSC scholarships were also utilized to a greater extent in these schools while loans from school funds were not, relative to other public schools, directed at students from these economic backgrounds. In contrast, higher tuition schools tended to use Armed Forces Health Professions Scholarships and school loans to a greater degree and AMA-ERF funds to a lesser degree, for meeting the needs of students from lower income backgrounds.

Among private schools, Federal Health Professions scholarships as well as scholarships from school funds were relatively important in supporting students from

these backgrounds. Less important were PH/NHSC and Armed Forces Health Professions scholarships.

IV. SUMMARY AND CONCLUSIONS

Trends in medical student financing between 1973-74 and 1975-76 were highly influenced by the federal government's efforts to increase the number of medical doctors practicing in physician shortage areas. Such efforts led to the creation of the Public Health and National Health Service Corps (PH/NHSC) and the Armed Forces Health Professions scholarship programs, which were oriented towards increasing the number of physicians for medically underserved populations, including those in the military services. Both of these scholarships were awarded on the basis of criteria that emphasized a student's willingness and qualifications to serve in an underserved area or in the military. The student's financial need, however, was not taken into account.

To provide financial assistance for students expressing need, the Federally Insured Student Loan (FISL) program received increased funding. In essence, this program provided need-based funds that would supplement the Health Professsions Loan and Scholarship programs, which were experiencing a progressive decrease in their funding between 1973-74 and 1975-76.

From 1973-74 to 1975-76, total financial aid to medical students through these programs as well as through other federal and non-federal programs increased by 60 percent. Excluding the PH/NHSC and Armed Forces Health Professions scholarships, however, this aid rose by only 32 percent. On the other hand, the total amount of financial need during this period increased by 38 percent. Thus, the growth in financial aid awarded on the basis of need did not keep pace with the growth in need during this period.

One of the primary reasons for the decline in the ability of medical schools to meet their financial aid needs was the 23 percent decrease in the amount of Health Professions Scholarship and Loan funds that were awarded between 1973-74 and 1975-76. Overall, 12 percent less financial aid need was met in 1975-76 than in 1973-74 through these two programs.

Public schools with lower tuitions, in contrast to other medical schools, increased the amount of aid awarded through Health Profession Loans. The rise in these funds plus a growth in funding from guaranteed bank loans and from scholarships not administered by the medical school allowed these schoools to meet the 44 percent growth in their financial aid needs over the three-year period under study.

High tuition public schools suffered more than other public schools and most private schools, from the decrease in Health Profession Loan and Scholarship funds. In all, funds from these sources at these schools decreased 71 percent between 1973-74 and 1975-76. This decline when combined with the 62 percent growth in financial aid need by these schools, meant that 18 percent less financial need was met in 1975-76 than in 1973-74. Other sources used to offset the decreases in the Health Professions funds included guaranteed bank loans, which met 10 percent more need in 1975-76 than in 1973-74. Although the amount of aid distributed from school funded scholarships increased in these schools by 100 percent during this period, this was largely offset by the 47 percent decrease in the amount of assistance in the form of school loans. Of all public schools, these higher tuition schools demonstrated the largest decline (10 percent) in the proportion of financial aid need met through assistance other than the PH/NHSC and Armed Forces scholarships. The increase in the number of PH/NHSC and Armed Forces Health Professions scholarships was lowest among the public schools with the highest tuitions, a situation that probably exacerbated the difficulties that these schools experienced in keeping up with their growing financial needs.

In general, private schools suffered less of a decline in meeting their financial aid need through Health Professions Scholarships and Loans than public schools. Still, private schools met 11 percent less of their aid through this source in 1975-76 than in 1973-74. The decrease was most notable among schools with tuitions ranging from $2,501 to $3,500, which were the private schools that experienced the largest growth in financial aid need.

To offset the decline in Health Professions Scholarships and Loans, students in private schools applied for and received substantially more funding from AMA-ERF loans and guaranteed bank loans. For instance, the amount of need met through such loans was 7 percent more in 1975-76 than in 1973-74. One notable exception were those private schools with tuitions ranging from $2,501 to $3,000, in which aid from guaranteed bank loans declined relative to financial need. These schools were the only private schools that suffered from a large decline in meeting their financial aid needs.

School funded scholarships and loans constituted a major source of financial aid in private schools between 1973-74 and 1975-76. These funds generally kept pace with the growth in financial need in these schools, and thus continued to serve as an important source of funding to them.

PH/NHSC and Armed Forces Health Professions Scholarships were increasingly utilized at those private schools with higher tuitions. In addition, those private schools in which financial aid need was not met through need-based funds tended to utilize both these sources to a larger extent than private schools in general.

In sum, the largest decreases in the proportion of financial need met through all sources of aid were among higher tuition public schools and lower (although not the lowest) tuition private schools. The major factors that determined how well a school met its financial aid needs included: 1) the degree to which the school's need grew, 2) the degree to which the school suffered a decline in funding, particularly from the Health Professions Loan and Scholarship programs, 3) the degree to which schools were able to utilize other sources of funding, notably their own funds and guaranteed bank loans, and 4) the degree to which PH/NHSC Scholarships were received by needy students at their school.

Results of analyses on the degree to which various sources of aid are awarded to students from less affluent families show that the decreased amount of aid available from the Health Professions Loan and Scholarship programs had the largest relative impact on

these students. On the other hand, they were relatively unaffected by funding changes in the PH/NHSC and Armed Forces scholarship programs.

Given rising tuitions and the increased emphasis on PH/NHSC scholarships and FISL programs in the future and the relatively reduced role of the Health Professions Loan Program, several conclusions can be drawn from the trends analyzed in this study. First, financial aid needs will continue to grow. Increases in tuitions and the constant growth in living expenses will outstrip the abilities of many parents to contribute substantially to financing their children's education.

Second, school funded scholarships and loans will probably not expand enough to offset declines in the funding level of other aid programs. The relative role of these funds in meeting financial need will probably be reduced to a large degree in all but the most well-endowed private schools.

Finally, since the future emphasis in financing students will be through guaranteed bank loans rather than Health Professions loans, it is essential that these funds be made available to students from less affluent families. One crucial problem concerns the inability of some medical schools to establish relationships with banks that could act as lenders in a guaranteed loan program. In addition many public schools are restricted from acting as an authorized lender in the guaranteed loan program by state regulations and many private schools lack the necessary funds to participate as a lender.

In sum, trends in medical student financing from 1973-74 through 1975-76 were largely due to changing federal health manpower policies. Recent changes in these policies have emphasized financial assistance as a means to affect the career choices of future physicians. Such programs may be necessarily attractive to needy students not able to obtain aid elsewhere. Accordingly, these programs may impose a harsher burden on these students to accept practice obligations than it does on more affluent students. In order to avoid this, financial aid policies need to maintain an adequately funded program of financial assistance awarded on the basis of need.

BIBLIOGRAPHY

Altenderfer, M. E. and West, M. D. How Medical Students Finance Their Education, PHS Publication No. 1336. Washington, D.C.: U.S. Government Printing Office, 1965.

American Medical Association. "Medical Education in the United States 1973-74." Journal of the American Medical Association (Supplement), Vol. 231, 1975.

American Medical Association. "Medical Education in the United States 1974-75. Journal of the American Medical Association, Vol. 234, No. 13, 1975.

American Medical Association. "Medical Education in the United States 1975-76." Journal of the American Medical Association, Vol. 236, No. 26, 1976.

Congressional Budget Office. "The Role of Aid to Medical, Osteopathic, and Dental Students in a New Health Manpower Policy." Washington, D.C.: U.S. Government Printing Office, 1976.

Fein, R. and Weber, G. Financing Medical Education. New York: McGraw-Hill, 1971.

Gordon, T. L. Comparison of 1974-75 Survey Findings with Data from Other Sources. Washington, D.C.: Association of American Medical Colleges, 1977.

Johnston, D. B. "Federally Sponsored Student Loans: An Overview of Issues and Policy Alternatives." Princeton, N.J.: College Entrance Examination Board, 1975.

Koleda, M. and Craig, J. 'The Medical Student Aid Shortfall: Magnitude and Implications, 1976-1980." Washington, D.C.: National Planning Association, 1976.

Lambdin, J. Survey of How Medical Students Finance Their Education. DHEW Publication No. (HRA) 76-94. Washington, D.C.: U.S. Government Printing Office, 1975.

Mantovani, R. E. Medical Student Finances and Personal Characteristics 1974-75. Washington, D.C.: Association of American Medical Colleges, 1977.

Mantovani, R.E. Medical Student Finances and Institutional Characteristics 1974-75. Washington, D.C.: Association of American Medical Colleges, 1977.

Mantovani, R. E., Gordon, T. L., and Johnson, D. G. Medical Student Indebtedness and Career Plans, 1974-75. DHEW Publication No. (HRA) 77-21. Washington, D.C.: U.S. Government Printing Office, 1976.

Mason, H. R. "Effectiveness of Student Aid Programs Tied to Service Commitment." Journal of Medical Education, 46:575-583, 1971.

Smith, L. C. R. and Crocker, A. R. How Medical Students Finance Their Education. PHS Publication No. 1336-1. Washington, D.C.: U.S. Government Printing Office, 1975.

Snedecor, G. W. and Cochran, W. G. Statistical Methods. Ames: The Iowa State University Press, 1967.

U.S. Department of Health Education and Welfare, Public Health Service. How Medical Students Finance Their Education. DHEW Publication No. 75-13. Washington, D.C.: U.S. Government Printing Office, 1974.

APPENDIX A

Information on Data Elements and Classification of Schools

Appendix A contains information on the financial aid data that are collected and stored by the AAMC. Exhibit A in this section is the portion of the LCME questionnaire dealing with financial aid. This information is supplemented by Table A-1, which is a list of IPS data elements that correspond to the questionnaire items.

Table A-2 gives a classification of financial assistance programs by 1) the type of aid disbursed (i.e., loan or scholarship), 2) the administrator of the program, 3) the source of aid and 4) the criterion used to award aid.

The final table in this Appendix, Table A-3, provides a list of schools by their control (affiliation) and by their tuition, which were important variables in describing trends in medical student financing.

EXHIBIT A

Financial Aid Portion of 1974-75 AMA-AAMC
Liaison Committee on Medical Education
(LCME) Questionnaire

Please return by July 10, 1975

_____
NAME OF SCHOOL
1974-75

FINANCIAL AID

Data on financial aid to students are important so that the need for such aid can be effectively communicated to governmental and private sources of financial assistance. *In answering questions 38 to 41 below include only information that can be substantiated by applications filed with, processed by, or otherwise known to your school. The major categories of financial aid meeting this definition are listed in questions 40 and 41.*

38. Amounts of financial assistance sought and obtained by your students for academic year 1974-75

	Class Year				
	First	Second*	Third*	Final	Total
a) Number of individual students applying for aid via school.	_____	_____	_____	_____	_____
b) Total of students determined by school to need financial aid.	_____	_____	_____	_____	_____

(Include all students who would qualify, according to whatever needs analysis system is used for any amount of financial aid from any source, assuming funds were available.)

c) Number of *individuals* (not number of awards) receiving financial aid from school. *See sources listed in 40.*	_____	_____	_____	_____	_____
d) Total assistance determined to be necessary by school (regardless of source.)	$_____	$_____	$_____	$_____	$_____
e) Total actually disbursed by school. (*Include only funds listed in 40.*) *Total should equal total in 40.*	$_____	$_____	$_____	$_____	$_____

N.B. Answers to questions 38d and 38e will be equal only *when the school fully meets the students' needs.*

*If it is not possible to report separate data for students in the second and third years, enter combined data for intermediate years under "Second Year" and initial here_____.

Please return by July 10, 1975

NAME OF SCHOOL
1974-75

39. Number of *individuals* included in question 40 who received combinations of aid disbursed by School.

Type of Aid Received	No. of Recipients	
a) Loans only	_____	
b) Scholarships only	_____	
c) Both Scholarships and Loans	_____	
Total Individuals	_____	*should agree with 38c*

Sources of aid provided to students during academic year 1974-75 *Work Study Assistance is not to be counted for this purpose.*

40. Funds Administered and Disbursed by the School: i.e., school decides amount of award and who will receive it.

	Loans		Scholarships	
Source of Funds	Amount	No. Recipients	Amount	No. Recipients
Health Professions Loans and Scholarships *other than those in 41* .	$_____	a) _____	$_____	f) _____
(Total amount actually disbursed by your school to students under Health Professions Loans and Scholarships, including matching funds provided by your school.)				
Robert Wood Johnson Program.	$_____	b) _____	$_____	g) _____
Guaranteed Loans with school as authorized lender.	$_____	c) _____		
School Funds *including tuition waiver, funds from operating budget, endowment, etc.*	$_____	d) _____	$_____	h) _____
Other *specify*_____	$_____	e) _____	$_____	i) _____

k) Total of loans and scholarships administered and disbursed by the school.

$_____
Should equal 38e

Please return by July 10, 1975

NAME OF SCHOOL
1974-75

41. Major Sources of Aid NOT Disbursed by School

		Amount	No. Recipients
1) Loans:	AMA-ERF Loans	$	a)
	Guaranteed loans with Bank as authorized lender	$	b)
	Other Loans *specify*		
		$	c)
2) Scholarships:	Armed Forces Health Professions Scholarships*	$	d)
	Public Health Service Health Professions Scholarships*	$	e)
	Physician Shortage Area Scholarships*	$	f)
	National Medical Fellowships*	$	g)
	Other Scholarships *specify*		
		$	h)

**Include (as accurately as possible) the full payment made by funding agency, whether to the school or directly to the student: e.g., payments for tuition, books, equipment, living costs, active duty service, etc.)*

42. **Fixed Education Costs to Students:**

1974-75 Tuition:	1975-76 Tuition:	1976-77 Tuition:
State Residents $	State Residents $	State Residents $
Nonresidents $	Nonresidents $	Nonresidents $

TABLE A-1

IPS Data Elements on Financial Assistance*

1. Number of individual students applying for financial aid via school
2. Number of students determined by school to need financial aid
3. Number of students receiving financial aid from school
4. Amount of assistance determined to be necessary by school
5. Amount of assistance disbursed by school
6. Number of recipients receiving loans only
7. Number of recipients receiving scholarships only
8. Number of recipients receiving loans and scholarships
9. Amount of aid disbursed from the Health Professions Loan funds
10. Amount of aid disbursed from Health Professions Scholarship funds
11. Amount of aid disbursed from Robert Wood Johnson Loan funds
12. Amount of aid disbursed from Robert Wood Johnson Scholarship funds
13. Amount of aid disbursed from schools under guaranteed loan programs
14. Amount of aid disbursed from National Direct Student Loan funds
15. Amount of aid disbursed from school loan funds
16. Amount of aid disbursed from school scholarship funds
17. Amount of aid disbursed from non-specified school administered loan funds
18. Amount of aid disbursed from non-specified school administered scholarship funds
19. Amount of aid disbursed from AMA-ERF funds
20. Amount of aid disbursed from banks under guaranteed loan programs
21. Amount of aid disbursed from non-specified loan funds not administered by school
22. Amount of aid disbursed from Armed Forces Scholarship funds
23. Amount of aid disbursed from Public Health Service Scholarship funds
24. Amount of aid disbursed from Physician Shortage Area Scholarship funds
25. Amount of aid disbursed from National Medical Fellowship funds
26. Amount of aid disbursed from non-specified scholarship funds not administered by school
27. Number of individuals receiving aid from the Health Professions Loan Program
28. Number of individuals receiving aid from the Health Professions Scholarship Program
29. Number of individuals receiving aid from the Robert Wood Johnson Loan Program
30. Number of individuals receiving aid from the Robert Wood Johnson Scholarship Program

TABLE A-1 (cont.)

31. Number of individuals receiving aid from schools under guaranteed loan programs

§ 32. Number of individuals receiving aid from National Direct Student Loan funds

33. Number of individuals receiving aid from school loan funds

34. Number of individuals receiving aid from school scholarship funds

35. Number of individuals receiving aid from non-specified school administered loan funds

36. Number of individuals receiving aid from non-specified school administered scholarship funds

37. Number of individuals receiving aid from AMA-ERF funds

38. Number of individuals receiving aid from banks under guaranteed loan programs

39. Number of individuals receiving aid from non-specified loan funds not administered by school

40. Number of individuals receiving aid from the Armed Forces Scholarship Program

41. Number of individuals receiving aid from the Public Health Service Scholarship Program

42. Number of individuals receiving aid from the Physician Shortage Area Scholarship Program

43. Number of individuals receiving aid from the National Medical Fellowship Program

44. Number of individuals receiving aid from non-specified scholarship funds not administered by school

---

* Items, except where noted, refer to elements found on LCME II questionnaires for 1973-74, 1974-75 and 1975-76. They therefore constitute a continuous "time series" for these years.

§ Refers only to the 1973-74 academic year.

TABLE A-2

Classification of Financial Assistance

Programs for Medical Students

Type of Program	Form of Aid (Loan/ Scholarship)	Administration of Aid (School/ Non-School)	Source of Aid (Federal/ Non-Federal)	Based on Need Criteria†
1. Health Professions Loans	Loan	School	Federal	Yes
2. Health Professions Scholarships	Scholarship	School	Federal	Yes
3. Robert Wood Johnson Loans	Loan	School	Non-Federal	Yes
4. Robert Wood Johnson Scholarships	Scholarship	School	Non-Federal	Yes
5. Guaranteed Loan Program (School as Lender)	Loan	School	Federal	Yes
6. School Scholarships	Scholarship	School	Non-Federal	Yes
7. School Loans	Loan	School	Non-Federal	Yes
8. Unspecified School Administered Loans	Loan	School	Non-Federal	Yes
9. Unspecified School Administered Scholarships	Scholarship	School	Non-Federal	Yes
10. National Direct Student Loan	Loan	School	Federal	Yes
11. AMA-ERF Loans*	Loan	Non-School	Non-Federal	Yes
12. Guaranteed Loan Program (Bank as Lender)	Loan	Non-School	Federal§	Yes
13. Other Unspecified Loans	Loan	Non-School	Non-Federal	Yes
14. Armed Forces Scholarships	Scholarship	Non-School	Federal	No
15. Public Health Service Scholarships	Scholarship	Non-School	Federal	No
16. Physician Shortage Area Scholarships	Scholarship	Non-School	Federal	Yes
17. National Medical Fellowships	Scholarship	Non-School	Non-Federal	Yes
18. Other Unspecified Scholarships	Scholarship	Non-School	Non-Federal	Yes

* The American Medical Association - Education and Research Foundation

§ It is assumed the Federally Insured Guaranteed Loan Program provides most of these funds, although some funds may be generated from state, local or private programs.

† It is assumed that all financial assistance is based on need except for those programs that are based on advance payment for future service.

TABLE A-3

Classification of Public and Private Schools By Tuition Level*

Public Schools*			Private Schools*			
<$750	$ 751-$1,500	>$1,500	<$2,500	$2,501-$3,000	$3,001-$3,500	>$3,500
Florida State	Arizona	Alabama	Baylor	Bowman-Gray	Albany	Boston
Massachusetts	Arkansas	SUNY-Buffalo	Howard	Case Western	Columbia	Brown
New Mexico	Calif.-Davis	Cincinnati	Mayo	Duke	Cornell	Chicago Medical
N. Dakota	Calif.-Irving	Colorado	Penn State	Emory	Creighton	U. of Chicago
Puerto Rico	Calif.-L.A.	SUNY-Downstate	Pittsburgh	Meharry	Einstein	Dartmouth
S. Carolina	Calif.-San Diego	Illinois	Rush M.C.	Miami	George Washington	Georgetown
S. Illinois	Calif.-S.F.	U. of Michigan	Temple	Rochester	Hahnemann	Loma Linda
Texas-Galveston	Connecticut	Minnesota-Duluth		St. Louis	Harvard	Loyola-Stritch
Texas-Houston	Florida	Minnesota-Minneapolis		Tulane	Johns Hopkins	U. of Pennsylvania
Texas-San Antonio	Georgia	M.C. Ohio		Vanderbilt	Mt. Sinai	Stanford
Texas-S.W.	Indiana	SUNY-Stony Brk.		Washington-St. Louis	New York Med.	Tufts
Texas Tech	Kansas	SUNY-Upstate		M.C. Wisconsin	New York Univ.	Yale
W. Virginia	Kentucky	Vermont			Northwestern M.C.	
	Louisiana-New Orleans	Wayne State			Pennsylvania	
	Louisiana-Shreveport				Southern Calif.	
	Louisville				E. Virginia	
	Maryland					
	Michigan State					
	Mississippi					
	Missouri-Columbus					
	Missouri-Kansas City					
	Nevada					
	New Jersey					
	N. Carolina					
	Ohio State					
	Oklahoma					
	Oregon					
	Rutgers					
	S. Alabama					
	S. Dakota					
	S. Florida					
	Tennessee					
	Utah					
	Virginia					
	M.C. of Virginia					
	U. of Washington-Seattle					
	Wisconsin					

*Tuitions are calculated from a weighted average of 1974-75 instate and out-of-state tuitions. The weighted average is calculated as follows:

$$\frac{(\#I/S\ Stud.)(I/S\ Tuit.)+(\#O/S\ Stud.)(O/S\ Tuit.)}{\#I/S\ Stud. + \#O/S\ Stud.}$$

This result is the average tuition paid at a particular school. Since most public schools primarily enroll in-state students, this average tuition will resemble their in-state tuition rate for these schools.

APPENDIX B

Supplementary Information on Average Amount of Aid From Various Miscellaneous sources of Aid, 1973-74 Through 1975-76

TABLE B-1

Average Amount (in thousands of dollars) of Guaranteed and Non-Guaranteed Loans from School Funds by Control and Tuition Level of Medical School, 1973-74 Through 1975-76

Control and Tuition Level	Guaranteed Loans				Non-Guaranteed Loans			
	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*
All Schools	18.4	25.5	38.3	108.2%	40.5	53.5	55.9	38.0%
Public	4.8	7.1	10.9	127.1	31.6	49.0	46.9	48.4
$0-750	0.0	0.0	35.4	---	8.8	11.4	14.9	69.3
$751-1500	2.6	9.8	7.4	134.6	33.3	53.2	61.8	85.6
Greater than $1500	16.9	5.7	0.1	-99.4	50.3	80.0	35.6	-29.2
Private	36.0	51.1	75.4	109.4	52.5	59.7	68.3	30.1
$0-2500	1.3	7.9	6.1	369.2	23.2	59.4	31.1	34.1
$2501-3000	47.5	27.3	45.0	-5.3	60.2	58.6	65.8	9.3
$3001-3500	59.2	86.2	114.7	93.8	51.4	63.9	100.7	95.9
Greater than $3500	13.0	45.8	92.5	611.5	64.0	54.9	44.5	-30.5

*Percent change from 1973-74 to 1975-76.

TABLE B-2

Average Amount (in thousands of dollars) of "Other" School-Administered Loans by Source, Control and Tuition Level of Medical School, 1973-74 Through 1975-76

Control and Tuition Level	Robert Wood Johnson Loans				National Direct Student Loans				Unspecified Loans			
	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*
All Schools	11.0	9.0	9.2	-16.4%	0.3	+	+	-	9.0	9.1	19.8	120.0%
Public	12.5	10.8	11.0	-12.0	0.5	+	+	-	12.3	10.0	21.7	76.4
$ 0 - 750	9.8	10.8	13.5	+37.8	2.4	+	+	-	0.9	15.2	10.9	1011.1
$751 - 1,500	13.2	10.8	10.0	-24.2	0.0	+	+	-	16.0	4.1	23.8	48.8
Greater than $1,500	13.7	11.9	13.2	-3.6	0.0	+	+	-	13.0	25.1	26.0	100.0
Private	9.0	6.7	6.7	-25.6	0.0	+	+	-	4.6	7.8	17.3	276.1
$ 0 - 2,500	5.4	2.0	2.8	-48.1	0.0	+	+	-	9.8	0.0	1.4	-85.7
$2,501 - 3,000	10.1	9.2	7.6	-24.8	0.0	+	+	-	3.2	5.3	0.8	-75.0
$3,001 - 3,500	9.4	8.3	6.7	-28.7	0.0	+	+	-	0.0	11.6	10.6	--
Greater than $3,500	9.7	4.7	8.3	-14.4	0.0	+	+	-	9.4	8.7	55.8	493.6

*Change from 1973-74 to 1975-76.

+No information available for these years.

TABLE B-3

Average Amount (in thousands of dollars) of "Other" School-Administered Scholarships
By Source, Control and Tuition Level of Medical School, 1973-74 Through 1975-76

Control and Tuition Level	Robert Wood Johnson Scholarships				Other Unspecified School-Administered Scholarships			
	1973-74	1974-75	1975-76	Percent Change *	1973-74	1974-75	1975-76	Percent Change*
All Schools	15.0	11.9	12.1	-19.3%	13.3	18.5	14.6	9.8%
Public	12.4	12.6	12.1	-2.4	11.6	14.8	16.4	41.4
$ 0 - 750	7.5	11.4	11.6	54.6	27.1	23.6	25.0	-7.7
$751 - 1500	13.7	14.1	11.8	-13.9	7.1	9.2	12.9	81.7
Greater than $1,500	13.5	9.6	14.8	9.6	10.8	25.8	18.7	73.1
Private	18.5	10.9	12.2	-34.1	15.6	23.4	12.1	-22.4
$ 0 - 2,500	15.5	11.5	9.5	-38.7	32.1	7.8	9.1	-71.7
$2,501 - 3,000	21.1	12.1	12.3	-41.7	1.9	0.0	0.0	-100.0
$3,001 - $3,500	20.2	12.0	13.8	-31.7	16.4	15.7	12.0	-26.8
Greater than $3,500	15.5	8.0	11.5	-25.8	17.4	63.6	26.4	+51.7

*Change from 1973-74 to 1975-76.

TABLE B-4

Average Amount (in thousands of dollars) of "Other" Scholarships From Non-Medical-School Sources
By Control and Tuition Level of Medical School, 1973-74 Through 1975-76

Control and Tuition Level	Physician Shortage Area Scholarships+				National Medical Fellowships, inc. Scholarships				Other Unspecified Scholarships			
	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*	1973-74	1974-75	1975-76	Percent Change*
All Schools	-	18.7	19.1	**	23.2	18.7	15.5	-33.2	35.7	35.[illegible]	51.2	43.4
Public	-	22.5	22.8	**	18.8	14.5	13.1	-30.3	29.7	32.3	43.9	47.8
$0-750	-	11.0	13.4	**	7.1	6.5	8.0	+12.7	12.3	28.0	28.5	131.7
$751-1500	-	22.3	23.7	**	18.6	14.0	11.2	-39.8	32.6	31.1	33.2	1.8
Greater than $1500	-	32.2	28.0	**	32.3	24.7	24.5	-24.1	33.6	43.3	99.7	196.7
Private	-	14.0	14.5	**	28.9	24.1	18.6	-35.6	43.9	40.3	61.1	39.2
$0-2500	-	16.2	17.1	**	53.5	44.6	33.6	-37.2	15.4	32.2	17.5	13.6
$2501-3000	-	20.8	19.8	**	34.6	24.3	22.2	-35.8	62.1	18.1	37.0	- 40.4
$3001-3500	-	10.1	13.2	**	23.9	18.4	13.8	-42.3	40.5	58.5	82.1	102.7
Greater than $3,500	-	11.7	8.9	**	16.4	20.0	12.6	-23.2	50.3	40.8	82.6	64.2

*Change from 1973-74 to 1975-76.

+Program not in effect in 1973-74.

**Not Applicable.

APPENDIX C

Techniques for Estimating Information About Financial Aid

Techniques used for estimating financial aid needs involved: 1) obtaining values to replace missing data on the medical schools' assessment of total need among students applying to them for aid, and 2) obtaining values that would represent the financial needs of students applying exclusively to sources other than their schools for aid. The specific procedures for obtaining these estimates are discussed in this section.

Medical schools, in replying to the LCME questionnaire, provided information on: 1) the number of students applying for financial aid, 2) the number of students who were determined to need financial aid and 3) the amount of aid that was determined to be necessary. Although fairly complete data are present on all these variables, there were some schools that provided no information. Thus, reports of aggregate totals, based on data collected from all medical schools, would underestimate the number of needy students and the amount of need demonstrated.

Substitute values for the missing data were estimated through least-squares regression techniques. Such techniques, in most cases, provide significantly better results than using the arithmetic mean as a substitute value. Their use, however is based on the assumption that schools with missing data were not substantially different from the schools on which the regression equation is estimated.

Table C-1 presents the results of a regression analysis of the number of needy students on total enrollments and to minority enrollments. As the R^2 values indicate, the independent variables explain approximately 80 percent of the variance in the number of students requesting aid in the 1973-74 and 1974-75 academic years and 68 percent of the variance in the 1975-76 academic year, and thus constitute highly significant predictors of the number of aid applicants.

The use of these equations can be illustrated for the 1973-74 year in which four schools had missing information on the number of their students requesting aid. These schools had enrollments totaling 1,536 students and minority enrollments equalling 51 students. When these numbers were substituted into the 1973-74 equation, their number of financial aid

TABLE C-1

Regression Equations Used to Estimate the Number of Students Requesting Aid of Schools With Missing Data

YEAR	CONSTANT	TOTAL ENROLLMENT	MINORITY ENROLLMENT	R^2
1973-74	+21.25	+.452*	+.432*	.808
1974-75	+ 5.45	+.474*	+.349*	.790
1975-76	+ 5.50	+.459*	+.189	.676

*Significant at $\alpha = .05$

applicants approximates 737 students. When added to the students that were reported to have requested aid from other schools, the total number of such students is increased from 26,100 to 26,837. This method was applied in each of the three years to obtain complete data on the number of applicants for financial aid.

Numbers of applicants were then used to generate values for missing data on the number of needy students. In this case applicants served as the predictor variable and the number of students determined to be needy was the variable to be estimated (Table C-2). Again the R^2 values indicate an excellent fit of the equation to the data. Of the 737 added applicants for aid in 1973-74, it was estimated that 662 were needy. This increased the estimated number of students demonstrating need from 23,685 to 24,422 (or to 48.7 percent of all students). (Since complete information was available on the number of students needing aid for the 1975-76 academic year, no equation was estimated for that year.)

In order to obtain values on the total amount of aid determined necessary for those cases with missing data, the average amount of aid per student was calculated by dividing (a) the aggregate amount of aid that was determined to be necessary by (b) the aggregate number of students determined needy. Only schools with complete data on both variables were used for this calculation. Thus, for 1973-74, the average aid needed per student equalled $3,315. This average was multiplied by the calculated number of students determined to be needy based on the numbers given by the schools as well as on the numbers estimated for schools with missing data.

The estimated values obtained for the need variables provided in Table 1 in the Results and Discussion section of this report, are given in Table C-3. These data are representative of the financial need of those students who actually apply to their medical schools for aid. It represents a low estimate of total need, however, since some needy students do not apply to their medical schools for aid if they are already funded from other sources.

An estimate of need among students applying only to sources other than the medical school was made using

TABLE C-2

Regression Equations Used to Estimate the Number of Students Determined to Need Aid at Schools With Missing Data

YEAR	CONSTANT	NO. STUDENTS REQUESTING AID	R^2
1973-74	4.38	+.892*	.949
1974-75	11.55	+.872*	.948
1975-76**			

*Significant at α = .05

**No data missing for 1975-76

TABLE C-3

Trends in the Firancial Needs of Medical Students, as Reported By Medical Schools, 1973-74 Through 1975-76

VARIABLE	1973-74	1974-75	1975-76
Enrollment (No.)	50,147	54,076	56,244
Needy Students*			
(No.)	24,422	25,485	26,766
(Percent)	48.7	47.1	47.5
Average Aid Needed Per Student	$ 3,314	$ 3,914	$ 4,147
Total Need* (in millions)	$ 82.1	$ 101.8	$ 112.1

*Figures include estimated data as described in Appendix C-3.

data from the 1974-75 survey, "How Medical Students Finance Their Education." Of the individuals responding in this survey to questions relating to their financial aid application activities, 10.2 percent applied exclusively to, and received aid from other than medical school sources. This percentage was used to inflate the number of needy students in each of the three years of this study. The inflated number of needy in each of the three years was multiplied by the average amount of aid required per needy student to obtain the total amount of financial need for students applying to either their medical schools or to other sources for aid.

APPENDIX D

Supplementary Information on the Number and Proportions of Students Receiving Loans and Scholarships, 1974-75

TABLE D1

Number and Proportions of Students Receiving Loan Aid
By Source of Aid, Control and Tuition of Medical School and Parental Income Level

Parental Income Level	Federal Health Profession Loans		National Direct Student Loans		Guaranteed School Loan		Non-Guaranteed School Loan		Robert Wood Johnson Loan		Private Bank Loan		Guaranteed Bank Loan		AMA-ERF		Other (State)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Public Schools with Tuitions of $750 or less																		
Less than $10,000	44	40.4%	8	7.3%	15	13.8%	4	3.7%	10	9.2%	6	5.5%	23	21.1%	2	1.8%	7	6.4%
$10,000-14,999	32	31.1	3	2.9	9	8.7	2	1.9	6	5.8	6	5.8	15	14.6	2	1.9	7	6.8
$15,000-19,999	27	28.7	2	2.1	6	6.3	4	4.3	3	3.2	5	5.3	16	17.0	3	3.2	5	5.3
$20,000-29,999	26	18.2	3	2.1	16	11.2	8	5.6	2	1.4	9	6.3	13	9.1	0	0.0	9	6.3
$30,000 or more	12	8.1	0	0.0	7	4.7	3	2.0	1	0.7	7	4.8	13	8.9	4	2.7	3	2.1
Public Schools with Tuitions Between $750 and $1500																		
Less than $10,000	177	43.4%	23	5.6%	56	13.1%	29	7.1%	6	1.5%	15	8.5%	99	24.3%	23	5.6%	17	4.2%
$10,000-14,999	176	36.7	14	2.9	40	8.4	36	7.5	5	1.0	17	3.5	109	22.8	16	3.3	21	4.4
$15,000-19,999	110	27.3	10	2.5	33	8.2	17	4.2	8	2.0	17	4.2	78	19.4	6	1.5	11	2.7
$20,000-29,999	114	21.5	12	2.3	40	7.5	36	6.8	7	1.3	13	2.4	118	22.2	18	3.4	7	1.3
$30,000 or more	32	5.2	4	0.7	15	2.4	10	1.6	2	3.3	16	5.2	32	5.2	13	2.1	13	2.1
Public Schools with Tuitions Greater Than $1500																		
Less than $10,000	89	51.1%	2	1.1%	19	10.9%	11	6.3%	5	2.9%	9	5.2%	54	31.0%	4	2.3%	8	4.6%
$10,000-14,999	90	47.4	4	2.1	21	11.1	15	7.9	11	5.8	7	3.7	64	33.7	10	5.3	13	6.8
$15,000-19,999	66	36.3	1	0.5	11	6.0	11	6.0	2	1.1	5	2.7	67	36.8	16	8.8	6	3.3
$20,000-29,999	67	28.5	6	2.6	17	7.2	14	6.0	2	0.9	12	5.1	71	30.2	13	5.5	8	3.4
$30,000 or more	17	6.3	5	1.9	10	3.7	4	1.5	1	0.4	5	1.9	33	12.2	10	3.7	6	2.2

TABLE D1
(continued)
Number and Proportions of Students Receiving Loan Aid
By Source of Aid, Control and Tuition of Medical School and Parental Income Level

Parental Income Level	Federal Health Profession Loan		National Direct Student Loan		Guaranteed School Loan		Non-Guaranteed School Loan		Robert Wood Johnson Loan		Private Bank Loan		Guaranteed Bank Loan		AMA-ERF		Other (State)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Private Schools with Tuitions of $2500 or Less																		
Less than $10,000	32	43.2%	3	4.1%	8	10.8%	5	6.8%	0	0.0%	14	18.9%	25	33.8%	10	13.5%	3	4.1%
$10,000-14,999	25	28.1	1	1.1	9	10.1	3	3.4	0	0.0	5	5.6	35	39.3	7	7.9	9	10.1
$15,000-19,999	6	10.7	0	0.0	5	8.9	2	3.6	0	0.0	2	3.6	19	33.9	4	7.1	4	7.1
$20,000-29,999	9	10.6	1	1.2	4	4.7	3	3.5	0	0.0	0	0.0	17	20.0	5	5.9	7	8.2
$30,000 or more	21	3.3	2	1.6	3	2.4	4	3.3	0	0.0	4	3.3	23	18.7	2	1.6	5	4.1
Private Schools with Tuitions Between $2500 and $3000																		
Less than $10,000	46	43.8%	0	0.0%	14	13.3%	11	10.5%	3	2.9%	5	4.8%	36	34.3%	15	14.3%	7	6.7%
$10,000-14,999	57	39.3	4	2.8	18	12.4	13	9.0	1	0.7	4	2.8	39	26.9	8	5.5	7	4.8
$15,000-19,999	26	30.2	4	4.7	5	5.8	7	8.1	1	1.2	2	2.3	21	24.4	3	3.5	2	2.3
$20,000-29,999	34	22.1	2	1.3	4	2.6	10	13.0	5	3.0	3	1.9	24	31.2	8	5.2	5	3.2
$30,000 or more	18	8.0	2	0.9	8	3.6	7	3.1	1	0.4	2	0.9	17	7.6	4	1.8	2	0.9
Private Schools with Tuitions Between $3000 and $3500																		
Less than $10,000	85	50.0%	10	5.9%	30	17.6%	15	8.8 %	4	2.4%	8	4.7%	71	41.8%	18	10.6%	11	6.5%
$10,000-14,999	88	51.8	7	4.1	20	11.8	7	4.1	3	1.8	6	3.5	80	47.1	21	12.4	13	7.6
$15,000-19,999	69	41.1	9	5.4	12	7.1	9	5.4	0	0.0	6	3.6	78	46.4	8	4.8	9	5.4
$20,000-29,999	55	21.7	8	3.2	22	8.7	16	6.3	4	1.6	9	3.6	80	31.6	29	11.5	14	5.5
$30,000 or more	22	5.7	4	1.0	16	4.1	14	3.6	2	5.2	12	3.1	61	15.0	13	3.4	12	3.1
Private Schools with Tuitions Greater than $3500																		
Less than $10,000	42	45.2%	7	7.5%	14	15.1%	8	8.6%	1	1.1%	6	6.5%	47	50.5%	10	10.8%	4	4.3%
$10,000-14,999	46	45.5	7	6.9	13	12.9	6	5.9	2	2.0	5	5.0	55	54.5	9	8.9	3	3.0
$15,000-19,999	39	30.2	5	4.7	18	17.0	7	6.6	4	3.8	7	6.6	51	48.1	9	8.5	4	3.8
$20,000-29,999	32	21.3	5	.3	15	1.0	14	9.3	1	0.7	11	7.3	65	43.3	13	8.7	2	1.3
$30,000 or more	18	7.0	6	2.3	7	2.7	11	4.3	0	0.0	10	3.9	42	16.3	11	4.3	8	3.1

TABLE D2

Number and Proportions of Students Receiving Scholarship Aid
By Source of Aid, Control and Tuition of Medical School and Parental Income Level, 1974-75

Parental Income Level	Federal Health Profession Scholarships		School Scholarships		Robert Wood Johnson Scholarship		PH/NHSC Scholarship		Physician Shortage Area Scholarship		Armed Forces Scholarship		NIH Scholarships		National Medical Fellowships	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Public Schools with Tuitions of $750 or less																
Less than $10,000	21	19.3%	12	11.0%	9	8.3%	4	3.7%	4	3.7%	6	5.5%	1	0.9%	5	4.6%
$10,000-14,999	15	14.6	4	3.9	6	5.8	3	2.9	1	0.9	15	14.6	2	1.9	1	0.9
$15,000-19,999	7	7.4	6	6.3	3	3.2	3	3.2	0	0.0	6	6.4	0	0.0	0	0.0
$20,000-29,999	4	2.8	9	6.3	1	0.7	5	3.5	0	0.0	14	9.8	0	0.0	0	0.0
$30,000 or more	6	4.0	10	6.7	1	0.7	2	1.3	2	1.3	10	6.7	2	1.3	1	0.7
Public Schools with Tuitions Between $750 and $1500																
Less than $10,000	75	18.4%	84	20.5%	31	7.6%	8	2.0%	18	4.4%	42	10.3%	10	2.5	18	4.4%
$10,000-14,999	51	12.7	84	17.5	11	2.3	6	1.3	6	1.2	45	9.4	6	1.3	9	1.9
$15,000-19,999	31	7.7	53	13.2	10	2.5	6	1.5	4	1.0	46	11.4	2	0.5	3	0.7
$20,000-29,999	29	5.5	79	14.9	6	1.1	11	2.1	4	0.8	28	5.3	8	1.5	4	0.8
$30,000 or more	16	2.6	25	4.1	1	1.6	14	2.3	6	1.0	30	4.9	9	1.5	2	3.3
Public Schools with Tuitions Greater than $1500																
Less than $10,000	47	27.0%	59	33.9%	5	2.9%	2	1.1%	11	6.3%	6	3.4%	3	1.7%	5	2.9%
$10,000-14,999	25	13.2	57	30.0	4	2.1	4	2.1	3	1.6	14	7.4	2	1.1	6	3.2
$15,000-19,999	23	12.6	43	23.6	3	1.6	2	1.1	3	1.6	10	5.5	2	1.1	2	1.1
$20,000-29,999	18	7.7	50	21.3	1	0.4	3	1.3	1	0.4	7	3.0	14	6.0	1	0.4
$30,000 or more	7	2.6	16	5.9	0	0.0	3	1.1	2	0.7	6	2.2	4	1.5	0	0.0

TABLE D2
(continued)
Number and Proportions of Students Receiving Scholarship Aid
By Source of Aid, Control and Tuition of Medical School and Parental Income Level, 1974-75

Parental Income Level	Federal Health Profession Scholarships		School Scholarships		Robert Wood Johnson Scholarship		PH/NHSC Scholarship		Physician Shortage Area Scholarship		Armed Forces Scholarship		NIH Scholarships		National Medical Fellowships	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Private Schools with Tuitions of $2500 or less																
Less than $10,000	20	27.0%	22	29.7%	0	0.0%	2	2.7%	2	2.7%	5	6.8%	3	4.1%	11	14.9%
$10,000-14,999	13	14.6	13	14.6	1	1.1	2	2.2	1	1.1	7	7.9	5	5.6	6	6.7
$15,000-19,999	2	3.6	8	14.3	1	1.8	3	5.4	0	0.0	5	8.9	2	3.6	1	1.8
$20,000-29,999	6	7.1	9	10.6	0	0.0	4	4.7	0	0.0	7	8.2	2	2.4	3	3.5
$30,000 or more	2	1.6	7	5.7	0	0.0	2	1.6	1	0.8	4	3.3	3	2.4	0	0.0
Private Schools with Tuitions Between $2500 and $3000																
Less than $10,000	12	11.4%	35	33.3%	10	9.5%	6	5.7%	2	1.9%	9	8.6%	3	2.9%	7	6.7%
$10,000-14,999	25	17.2	45	31.0	6	4.1	8	5.5	0	0.0	7	4.8	6	4.1	9	6.2
$15,000-19,999	9	10.5	16	18.6	0	0.0	0	0.0	3	3.5	13	15.1	3	3.5	2	2.3
$20,000-29,999	8	5.2	30	19.5	1	0.6	3	1.9	0	0.0	14	9.1	9	5.8	3	1.9
$30,000 or more	3	1.3	20	8.9	0	0.0	8	3.6	1	0.4	10	4.5	10	4.5	0	0.0
Private Schools with Tuitions Between $3000 and $3500																
Less than $10,000	15	8.8%	68	40.0%	7	4.1%	2	1.2%	5	2.9%	7	4.1%	3	1.8%	6	3.5%
$10,000-14,999	17	10.0	40	23.5	4	2.4	1	0.6	1	0.6	13	7.6	2	1.2	3	1.8
$15,000-19,999	12	7.1	45	26.7	2	1.2	3	1.8	3	1.8	9	5.4	3	1.8	3	1.8
$20,000-29,999	15	5.9	40	15.8	2	0.8	13	5.1	2	0.8	10	4.0	7	2.8	0	0.0
$30,000 or more	5	1.3	15	3.9	0	0.0	7	1.8	1	0.3	7	1.8	16	4.1	0	0.0
Private Schools with Tuitions Greater than $3500																
Less than $10,000	16	17.2%	37	29.8%	2	2.2%	4	4.3%	3	3.2%	1	1.1%	1	1.1%	4	4.3%
$10,000-14,999	15	14.9	28	27.7	3	3.0	4	4.0	2	2.0	4	4.0	2	2.0	2	2.0
$15,000-19,999	10	9.4	33	31.1	3	2.8	4	3.8	0	0.0	7	6.6	5	4.7	5	4.7
$20,000-29,999	5	3.3	34	22.7	0	0.0	5	3.3	0	0.0	8	5.3	9	6.0	1	0.7
$30,000 or more	2	0.8	12	4.7	0	0.0	3	1.2	0	0.0	8	3.1	9	3.5	1	3.9